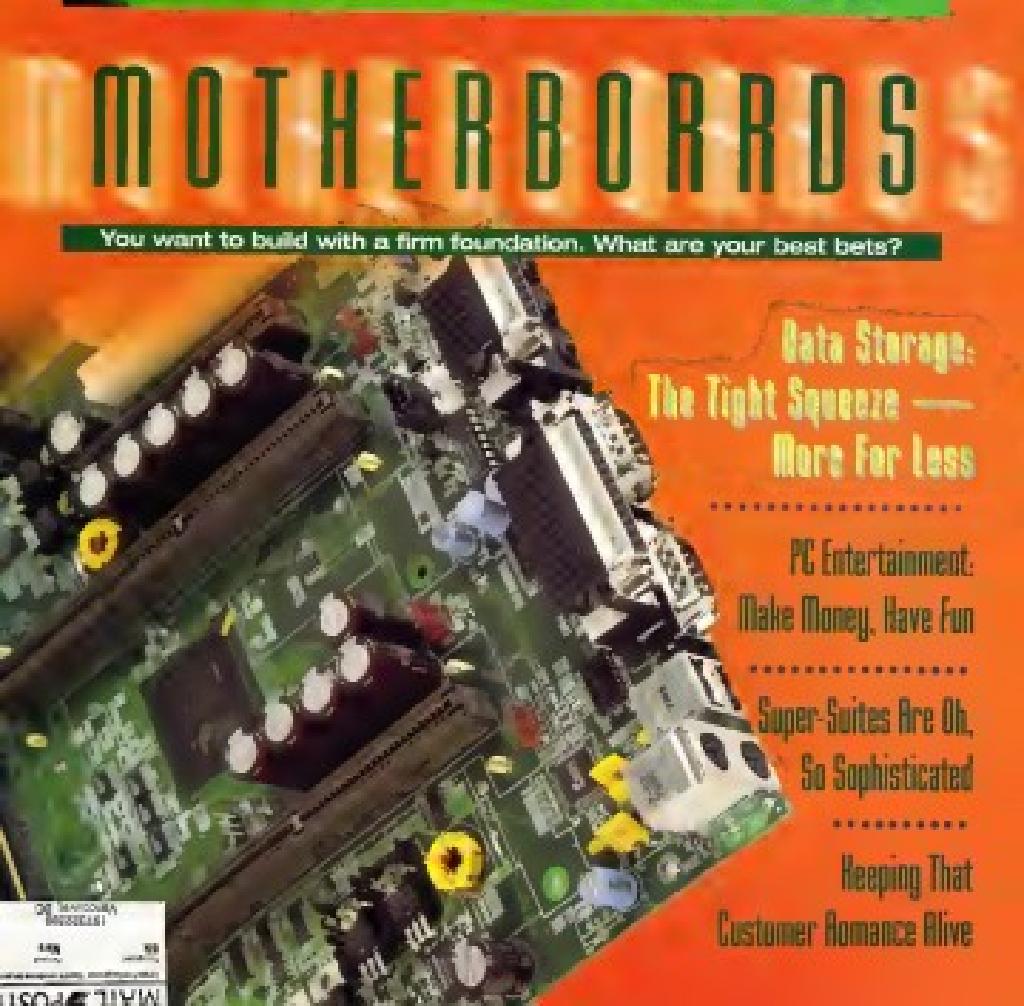


Canadian Computer Wholesaler



You want to build with a firm foundation. What are your best bets?

Data Storage: The Tight Squeeze — More for Less

PC Entertainment.
Make Money. Have Fun.

Super-Suites Are Oh, So Sophisticated!

Keeping That Customer Romance Alive



Upgrade to Chest-Thumping, Soul-Satisfying Sound.



*"May Just Outclass
Your Home Hi-Fi."*

—PC Gamer



Turn Your PC Into a High-Performance Sound System!

Why settle for the tiny sound of the speakers that come with your PC? Now you can enjoy home stereo audio quality directly from your PC. Creative and Cambridge SoundWorks™—designers of highly acclaimed home theater speakers—bring you the ultimate in high-performance PC speakers. These amplified watershed speaker systems produce highly realistic and wide-ranging sound—including basses so low—at prices that can't be beat. Want the Coolest PC? Visit us at www.coolestpc.com or call 1.800.998.5227.



PC Works™

The most affordable PC audio system that offers true high-performance sound.



SoundWorks™

Experience amazing wide-range sound—including great bass—on your PC.



MicroWorks™

"The Only Speaker You'll Ever Need."

Speaker • Subwoofer



The Hottest Upgrades Create the Coolest PC.™

©1998 Creative Labs Inc.

Great sound. Indisputable. An award-winning sound card. An innovative technology. And a commitment to quality. All in one package. It's the Coolest PC.

CREATIVE®

WWW.SOUNDBLASTER.COM

14A+ MONITOR



17A+ MONITOR



15A+ MONITOR



17M+ MONITOR



EMPAC Has Your Viewing Solution.

Monitor Series

- Available in 14", 15" and 17"
- .28mm dot pitch
- Plug & play compatibility
- Three-year limited warranty
- Emissions (FCC-B, MPR-II)
- Energy consumption (EPA, Energy Star, VESA, and DPMS)
- Safety (UL)
- Digital microprocessor

Multimedia Monitor Series

- Available in 15" and 17"
- 1280 x 1024 (NT)
- Digital microprocessor
- On-screen display
- Manual degaussing
- Speakers (2Watt x 2)

AZURA

Visit EMPAC on the web at
www.empac.ca

- Product Information
- Price Guide
- FTP file download service
- Link to manufacturers

1-800-T-O-EMPAC



At EMPAC we offer you:

- Dedicated knowledgeable sales team
- Wide product offering
- Weekly specials
- Prompt customer service
- Outstanding technical support
- Sales personnel available 8 a.m. to 6 p.m. EST Monday through Friday
- Full service facilities in Vancouver, Montreal and Toronto
- Toll-free-helpline
- Award winning systems
- The latest technologies
- Cost competitive solutions

EMPAC
Solutions In Computer Distribution

Call your EMPAC sales representative for more information.

Toronto Office
166 Kipling Circle
Markham, ON
L3R 9T9
Ph: 905-840-3600
Fax: 905-840-3604

Montreal Office
3385 Rue Griffith
St Laurent, PQ
H4T 1W5
Ph: 514-345-9000
Fax: 514-345-8551

Vancouver Office
100-4611 Viking Way
Richmond, B.C.
V6V 2K9
Ph: 604-821-0177
Fax: 604-821-0277

All company logos and/or trademarks are registered trademarks of their respective companies.

CONTENTS

JANUARY 1998 VOL 4 NO.1

THE INDUSTRY

The Price For Principles

By Paul Wensley

The Biggest Secret Service

By Jeff Evans

THE ENTERTAINMENT MARKET

Pushing The Envelope On PC Entertainment

By Paul Wensley

STORAGE DEVICES

Data Storage Technology

Racing To Keep Pace With Exploding Demands

By Jeff Evans

Storage Research

The Trials And Tribulations

By Grace Gorham

EYE ON THE INDUSTRY

Small Storage: Will That Be Spinning Or Sold?

By David Roads

OFFICE PRODUCTIVITY

The Super-Suites

By Sue McGehee

LAB TEST

Motherboards

You Want To Build With A Firm Foundation

What Are Your Best Beta?

By Jack Moore, Tim Brumfitt-Walter and Steve Kinsella

MARKETING

Building Customer Relationships

By Monica Koenig

TECHNOLOGY

PCB — Where Are We Going?

By Alan Zarem

BUSINESS BASICS

Should You Buy Or Lease Your Business Vehicle?

By Douglas Gray

THE PUNDIT

No Simple Cure For Slowing Sales

By Griselda Bresser

BOOK REVIEW

Book Helps Prepare For Microsoft Certification

By Stephen Brooks

DEPARTMENTS

The Editor's Desk

6

Industry Flash

8

Canada Watch

12

Astroscopic

48

New Products

58

Calendar

61

People

61

Nifty Numbers

62

Take our Reader Poll!

Page 62

Win Free Software!



The best way to back up a promise.



The HP Colorado T3000 is compatible with Travan TP 1, QIC™-940 and QIC-945 formats.

The HP Colorado™ T3000 tape drive does more than just backup data; it backs up your word. You can assure customers the 3.2 GB T3000 is the low cost per MB, easy-to-use, complete system backup. HP quality means their data is secure. And they can share your confidence: HP's reliability extends far beyond drive mechanisms; it means total support for resellers, with products, service and information there when you need it.

To help you sell and support storage products, HP has created a special website exclusively for resellers: www.hpsstorage.com, with all the support and information you'll need. When your customers need affordable desktop storage, be sure to give them a name they

Be Sure!
already trust: HP. That way, they'll know their system is safely backed up and you'll know your promise is, too.



Available in Canada from the following distributors:



MULTIMEDIA





Sheer techno-love!

I had a moment of pure bliss recently, when I stood in front of a computer monitor and controlled objects on the screen merely by moving my hands and arms about. I was able to reach out, grab representations of molecules and move them across the computer screen. Talk about an innovative user experience!

The venue was a Comdex/Fall press briefing, and IBM Corp. was showing off research that saw wave input combined with movement. Staff researcher Mark Lascaris stood about 10 feet in front of a large computer screen with a small camera mounted over it. He called up applications using voice commands. He was also able to point to specific objects, and say, "Make that bigger," or "Make that blue." (They didn't let me play with the microphone!) Another example showed a picture of the Mars lander. As Luccone walked closer to the screen, he moved deeper into the screen. Turning right turned the view rightwards and stepping back took him further away. IBM says big business like oil and pharmaceutical industries, see applications for the visualization technology as it matures.

This is cool stuff. Now I'm all emotionally geared up to sit in front of my PC and move the cursor about with a joystick, or indicate text or graphics with the wave of a finger tip. Alas, this technology won't be ubiquitous for a few years yet.

IBM is just one of a number of companies doing significant studies into future technologies. At the company's Almaden Research Center in San Jose, Calif., researchers are working away at squeezing more data into less storage space. Indeed, the amount of data that can fit into one square inch has been growing at a compound rate of 60 per cent per year. To this end, scientists are experimenting with holographic storage, and even studying the possibility of storing data directly with atoms. For an in-depth examination of storage technologies and markets, see Associate Editor Jeff Evans' feature, "Data Storage Technology Race to Keep Pace With Explosive Demands," page 20.

A few years ago, "geek" was something of an insult. Today self-proclaimed geeks are doing amazing things with technology, and loving it. A little while back, one such young man tried to get to me, by

suggesting, "You don't really love technology." "No, no, I DO!" I protested sharply, snapping off some of my favorite tech-topps. But the fact is, while I find some technologies to be near-o-cool, others make my eyes glaze over.

And isn't it the same with your customers? There are among your clients, those who will get a warm glow at the mere mention of 128MB in their PC. Others are just looking for the most basic word processing/general functionality that the PC enables (See, "The Super-Sales," page 32 for a look at today's power-packed office productivity tools.)

But good business is all about giving your customers what they want. For suggestions on keeping the spark alive with your clients, see this issue's Marketing column, "Building Customer Relationships," page 50.)

Here at Canadian Computer Wholesaler, we try to bring you insightful, detailed coverage of current and coming technologies that will help you in your business buying and selling decisions. This issue our Lab Test Editor Steve Hinckley and Tim Brigham-Walls take a very close look at 25 different motherboards. Check out page 36 for reviews of these very key components to your systems.

Write Us

We love to hear your feedback on our coverage and suggestions for future topics. For example, the article on software piracy this issue (page 14), was a direct result of a reader E-mailing us his story.

What are your interests, concerns or pet peeves? Drop me a line at pc@ccw.ca, or visit our Web site at <http://www.ccw.ca>.

Have a very happy, and profitable New Year. DR

Grace Cawdron
Editor

CCW BULLETIN BOARD

Looking for a product, service or partner? Write to CCW Bulletin Board, 65 Bloor St. W., or fax 416/281-7602.

Letters To The Editor

We welcome your letters on industry issues and concerns, as well as your comments on our magazine.

We reserve the right to edit your contributions for length and clarity.

Please write to The Editor, via E-mail at ccw@pc.gc.ca, or fax 604/881-2816.

Canadian Computer Wholesaler

Publisher David Koor
Associate Publisher Judy Pringle
Editor Grace Cawdron (grace@ccw.ca)

Associate Editor Jeff Evans (jeff@ccw.ca)
Customer Witness Tim Brigham-Walls (tim@ccw.ca)

Production Staff Jeff Evans (jeff@ccw.ca)
Grace Cawdron (grace@ccw.ca)

Key Account Manager (West) Tim Wong (tim@ccw.ca)
Key Account Manager (East) Berlin Loughran (berlin@ccw.ca)

Account Managers Marlene Miller (marlene@ccw.ca)
Frank Houssier (frank@ccw.ca)

Controller Christine McPhee
Accounting Linda Ainslie
Circulation Scott Rizzo
Readers Kim Jewell
Kent Liyan Chan
Li Ding

Canadian Computer Wholesaler is published 12 times a year by **Canada Computer Paper Inc.**

Toronto Office
Suite 200 - 99 Athlone Ave.
Toronto, Ont. Canada M3J 2B9
Tel: (416) 355-8400
Fax: (416) 355-9374

Vancouver Office
Suite 500 - 500 Burrard St.
Vancouver, B.C. Canada V6C 1E3
Tel: (604) 681-3000
Fax: (604) 681-2680

Seattle Office
PACIFIC
Tel: 800-270-4830
Fax: 800-234-5110
Internet E-mail address: ccw@pacific.com
Web Site: <http://www.ccw.ca>

Subscriptions, advertising and change of address notices must be sent in writing to our circulation department.

Post publications: 25¢ standard rate, \$10.00 per year for non qualified subscribers. All paid subscriptions, \$10.00 per year for qualified subscribers. Postage paid at Vancouver, B.C. and additional mailing offices. All rights reserved. The opinions expressed in articles are necessarily those of the publisher.

Printed in Canada
Postage paid at Vancouver, B.C.
ISSN 0822-2389



Yes... You CAN

*Close more sales
Increase profits*

Become a NEWCOURT
CREDITLINK™
Authorized Dealer

Newcourt CREDITLINK, an automated, on-the-spot finance program, provides you with an easy-to-use total finance solution.

Within 8 minutes, you can negotiate a financial term, receive a credit decision and have the lease documents printed, all at your store location.

With Newcourt CREDITLINK you control the sale!

AND... you have access to a team of sales & marketing professionals across Canada who are dedicated to being your financial partner, through training, merchandising and advertising support.

Contact any of the following Newcourt CREDITLINK partners.



1-800-567-3274

SHARP

1-800-565-HARP

Supercom

1-800-949-4567

KEN-ROD

1-800-530-0794

KeyTech

(204) 452-7347

3DNEIRO

1-888-1 GO 4 IPC

STD

1-800-INFO STD

EDGE

(905) 948-0000

BEAMSCOPE

1-800-268-5535

PCB

1-888-221-3030

BIZ-PRO LTD.

(619) 432-7564

Samtack

1-888-8spinpc

FedEx/Bell

NEC

**NEWCOURT
CREDITLINK™**

<http://credlink.newcourt.ca>



Newcourt
Financial



Microsoft suffers legal defeat over browser

(N.Y.) — Although Microsoft Corp. is putting a positive spin on U.S. District Judge Thomas Penfield Jackson's temporary injunction that prevents Microsoft from requiring computer makers who license its Windows 95 computer operating software to also accept its Internet Explorer browser, the decision is a clear defeat for the software giant, according to antitrust lawyers.

In his ruling, Judge Jackson agreed with the U.S. Justice Department and said Microsoft "shall cease and desist from the practice of licensing the use of any Microsoft personal computer operating system software... or the



condition, express or implied, that the licensee also license and pre-install any Microsoft Internet browser software pending further order of [that court]."

The temporary injunction does allow Microsoft to continue to offer to original equipment manufacturers (OEMs) the full Windows 95 product, which includes Microsoft Internet Explorer, as long as each OEM has the option of installing the portion of Windows 95 that does not include Internet Explorer 3.0 or 4.0 files.

While issuing the cease and desist order, Judge Jackson also ruled with Microsoft on other areas, including denying the Justice Department's request to fine the company US\$1 billion a day for violating a 1995 antitrust agreement.

This is just a temporary injunction against Microsoft, but temporary can be a long time, especially considering Microsoft's Windows 98 had been expected to bundle the Internet Explorer even more closely with the operating system.

Voice recognition is HOT

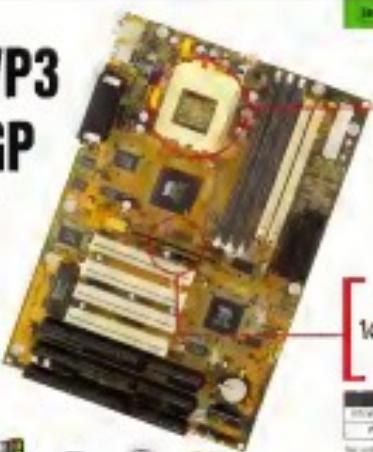
The speech market is heating up. At Comdex/Fall in Las Vegas, three major developers of speech recognition software demonstrated new continuous-speech products.

IBM Corp. is shipping the ViaVoice Gold continuous-speech software (US\$149), which handles both voice-dictation and computer control via voice commands. A voice-enabled version of Microsoft's Internet Explorer is included, to allow for voice-controlled Web browsing.

Currently shipping is Dragon NaturallySpeaking, from Newton, Mass.-based Dragon Systems Inc. Supporting continuous speeds, the company claims users can input up to 160 words per minute through voice, with 99 per cent accuracy. A version for home users and small business is priced at US\$329. A higher "Deluxe" edition for corporate users is priced at US\$895.

Bellcross-based Lernout & Hauspie Speech Products (L&H) plans to ship Voice Xpress early this year. The product supports both continuous-speech dictation and the ability to control the computer with voice commands. Microsoft Corp., recently acquired US\$45 million in this company.

EPoX P55-VP3 Bringing AGP to Socket 7



AT form factor motherboard
also available



NOVELL



Why AGP
on Socket 7?

- Socket 7 holds majority of the PC market
- Offer AGP in complete range of the PC market high end and low end
- Deliver comparable performance to AGP 1X/16X without a much lower cost

What is the
10 Times Performance
Gain over PCI?

PCI 16X 16X	AGP 1X	AGP 16X
100MHz 16MB SGRAM	AGP	AGP
PCI 16MB SDRAM	PCI	PCI

See independent benchmarks (www.agp.org, www.pcperf.com, www.pcstat.com)



EPoX

EPoX is a member of A+P and ViaVoice by IBM Technologies, Inc.
Please visit <http://www.epoxys.com> for more details.

FOCUS OF CASING...

DIAMOND SERIES



DA16U
DA17U

MAGIC SERIES



ME1000
ME1010
ME1020



ME1000
ME1010
ME1020

BESTSELLER IN INDUSTRIAL
CASE INDUSTRY CASES



NEW DIAMOND SERIES
VERSUS PLASTIC PANEL



LCH

LCH Resources Inc.

P.O. 12511 Crestwood St. Richmond B.C. V6V 2B1
TEL: 604/279-0708 • FAX: 604/279-0306
WEB SITE: www.lchres.com



MULTIMEDIA SPEAKERS



EXTERNAL 3.5" DISK DRIVES
WITH FRONT DOOR BARS



EXTERNAL 5.25" DISK DRIVES

Life time warranty on switching power
supplies and multimedia speakers.

Qualcomm outraged at espionage charges against employee working in Russia

(NBS) — Qualcomm Inc. officials said they are "shocked and outraged" at Russian officials, who filed espionage charges against its lead technologist Richard Blum. The Moscow regional prosecutor filed charges against Blum after the FSB — the organization that succeeded the Soviet KGB — recommended the action.

Boris was taken into custody after he surveyed land in southern Russia. The *Associated Press* quoted a spokesman for the Federal Security Service (FSB) as saying Boris confessed to the arson, which made up the

charge, but his maintained that he was not guilty.

Qualcomm is under contract with a Russian firm to install a cellular phone system in the Rostov region, officials said. The AP said Bish was accused of violating a statute that outlaws "gathering information connected to state secrets with the goal of providing it to a foreign state, foreign organizations or their representatives."

U.S. embassy officials have claimed that Blas is not connected to the U.S. government.

and as well a spy Brem could face 10 to 20
people up alone if he is prepared.

"Many companies doing or planning to do business in the Commonwealth of Independent States (CIS) have been in close contact with us and they have shared their grave concern with this situation," Qualcomm said. "Clearly, the international business community, whose products and technologies benefit the Russian people, are watching this situation unfold and are thinking twice about sending their people into such an uncertain environment."

Hyundai shelves semiconductor plant in Scotland

(NTB) — Although Korea is on the other side of the world as far as most people in Europe and the U.S. are concerned, the shockwaves from the financial earthquake that are affecting Asia continue to inflate outwards. Hot on the heels of Samsung racing its UK and Irish chipmakers in Scotland, comes news that Hyundai has shelved its plans for a US\$3.4 billion semiconductor plant in Scotland.

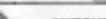
The economic slowdown coincides with the financial jitters ongoing around Asia, as the South Korean stock market plummeted on rumors that the International Monetary Fund (IMF) US\$55 billion bailout — the largest in the history of the IMF — may not be enough to stave off financial disaster.

The Hyundai semiconductor plant in Fife, Scotland, was due to employ several thousand people, but plans have been put on hold for at least two years. Donald Dewar, the U.K.'s Scottish secretary, said on TV, as news of the problem broke, that there are "worsens that the factory may not now open at all."

StorageTek and HP
announce agreement

StorageTek Corp. has announced a worldwide strategic relationship with Hewlett-Packard under which HP will manufacture part of StorageTek's TimberWolf family of DAT tape libraries.

StorageTek Canada says this agreement, valued at US\$5105 million as estimated revenue, allows the company to better serve Canadian UNIX and midrange markets by targeting customers through HP Canada's channels.

<p>Tomken Microcomputer Systems Inc.</p> <p>Computer Products Distributor Unit #9-11, 991 Matheson Blvd. E. Mississauga, Ontario L4W 2V3</p>		<p>Tel: (905) 625-9889 (905) 625-3302 Fax: (905) 625-7280</p>	
		<p>AM-737</p> <ul style="list-style-type: none"> 3 Buttons Serial Mouse for MS/PC Compatible with disk PC/AT/XT/XT/Plus/AT/PS/2 2 Comports Available in Macintosh System & Microsoft Systems For Windows 3.1, 3.11, 95, 98, Me, & Win95 Software and Magic Mouse Functions 	<p>AM-747</p> <ul style="list-style-type: none"> 3 Buttons for Microsoft Syst. Compatible with IBM PC/386-486-Plus/Windows 3.1/95 Available in Microsoft Syst. Simply click the Magic Mouse button to scroll through the screen sideways to horizontal or vertical direction. Zoom function can magnify selected area of any file or picture by using mouse or keyboard keys.
<p>We customize easy-assembly cases for your OEM needs</p>		<p>A professional computer parts distributor for resellers and dealers offers you your best choice without hassles.</p>	
<p>Cases & Power Supplies Cables & Accessories Keyboards & Touchpads Monitors & Monitors Speakers & Sound Cards CPU & Miniature</p>		<p>Modems & Printers FDD, HHD, CD-ROM & Tape CPU Coolers & Heatsinks Faxmodems & Network Cards</p>	
<p>For more information just pick up the phone and call Tomken Microcomputer Systems. (Resellers & Dealers only).</p>		<p>NEC   </p> <p>All brands names are the registered trademarks. Products are off the shelf quantities.</p>	
<p>MITSUMI  </p>			

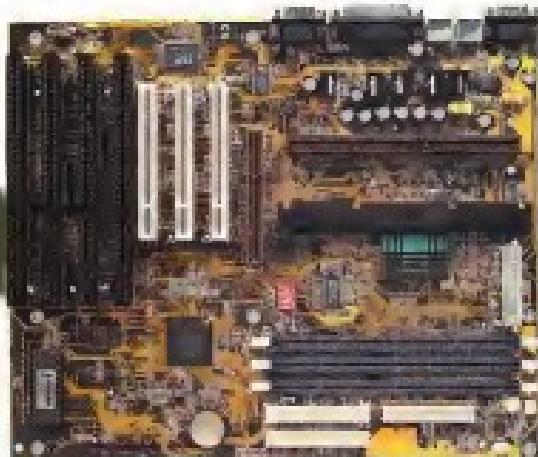


LUCKY STAR

Best Performance
with Hard Disk Transfer
Rate & 3D Graphics...
perf. 100% faster than others.

Best Performance in CPU
MARK and other items...
perf. 100% faster than others.

The Best Of Lucky Star Continues...



6 IX-LX1 Pentium II Mother Board

Chipset: I440FX
CPU: Pentium II
Speed: 233 - 400 MHz
SDRAM: 8 x 64 / 3 x 32
SDRAM: CPU 256 / 512K
Slot: 4 x ISA, 3 x PCI, AGP 3.3
Front Panel: ATX (1) or 2-SATA
Size: 24.5 cm x 30.5 cm

Features

- PCI - ISA Bus Type
- 3 x Serial Expansion Slots
- Fast Parallelport Interface
- 2000 System Memory
- 3.5" 512 Floppies
- Award Bios Options
- 2 PCI IDE Ports
- Supports 4 Device/CD ROMs
- Matching Power Supply
- FDD Model: 3.5" 4, 17 MHz
- Bus Master Ready (I & O 32BIT), 32 MBs
- 2 x 16150 Serial I/O Interface Ports
- 1 Parallel Port Interface Ports (EPP/EPL)
- 1.8 Volt Full ED Bios Bus, Header
- USB supported, Rev 1.1 Electrically
- Compliant, Header On Board



2 year no-negotiate warranty + first 6 months replacement program

Daiwa Sales Distributor

DAIWA

DAIWA DISTRIBUTION INC.

All rights in trademarks are the property of their respective
holders. Applications subject to change without notice.

Corporate

201 ALDON ROAD
MARIETTA
GA 30067 USA
Tel: (800) 548-2889
Fax: (800) 474-8284

EMEA/ROW

10250 CRESTWOOD PLACE
UNIT 11-13
RICHMOND, B.C. V6V 2G3
Tel: (604) 264-8912
Fax: (604) 264-8905

U.S.A.

2151 OTTOLE AVENUE
SUITE 6
SAN JOSE, CALIFORNIA
Tel: (408) 321-8950
Fax: (408) 321-8953

Toll Free: 1-888-380-2482

Web Site: <http://www.daiwa.net>

ADVERTISERS INDEX

ASB		
1-800-228-2800	http://www.asb.com/canada/	58
Goldstar		
1-800-721-2811	http://www.goldstar.ca/	55
Canadian Internet Works		
1-800-555-1555	http://www.ciw.ca/canadianinternetworks/	53
Electronics 4 You		
1-800-555-5555	http://www.electronics4you.ca/	45
Electronics News Network		
876-1000	http://www.electronicsnews.com	24
ComputerKeyway		
800-251-1049		57
Compu-Movie Systems		
1-800-211-1881	http://www.compmov.com	51
Optics Advances		
1-800-543-5561	http://www.opticsadvances.com	19
Optimere Labs		
1-800-423-1232	http://www.optimere.com	2
Optex		
1-800-250-2442	http://www.optex.com/ca/	11
DMX Expressions		
1-800-554-7036	http://www.dmx.ca/	35
Progeny Computer Corp.		
1-800-546-3600	http://www.progeny.ca/	3
Power Net		
1-713-595-5555	http://www.power.net	2
Merkury Packard		
1-800-391-2977	http://www.merkury.ca/packard.com	5
Intellinet		
1-800-555-1855	http://www.intellinet.ca	23
Business Technology Inc.		
1-800-391-1800		18
Print Plus		
1-714-555-2875		60
Printz		
1-800-371-9333		19
Printex		
1-800-381-5552	http://www.printex.ca	33
Lapco Marketing		
1-800-344-7556	http://www.lapco.com	29
UDI Resources Inc.		
1-800-511-9256	http://www.udiresources.com	9
Legal Free Association		
1-800-828-2611	http://www.legal-free.com	48
Logosys		
1-800-555-1555	http://www.logosys.com	21
Avantech International		
1-800-571-5120	http://www.avantech.com	7
Micro-Byte Computer Inc.		
1-800-214-3222		22
Pro-Plus		
1-800-567-2234	http://www.pro-plus.com	63
3DZ Computer (Ottawa)		
1-800-510-5820	http://www.3dz.com	27
Breakout Computer		
1-800-510-1780	http://www.breakout.com	13
Space Technology Inc.		
1-800-767-2515	http://www.spacetech.com	27,64
SIDB		
1-800-571-5555	http://www.sidb.com	47
Whale King's Watch Store		
1-800-555-4333	http://www.whalekings.com	27,31
TSP Resources (Guelph)		
1-800-279-8556		17
Transcan Computer Supplies Inc.		
1-800-525-5810		50
Whale King's Watch Store		
1-800-555-4333	http://www.whalekings.com	27,31
Zeta		
1-800-474-0322	http://www.zeta.com	27,31



Canadian News

Tenex Data signs deal with StorageTek Canada

Tenex Data has signed a deal to become the Canadian distributor for StorageTek Canada products.

Under this agreement, Tenex Data will be offering the StorageLink STK 97xx DLT libraries and 913a family of disk drives to resellers across Canada.

Tenex Data is at: (416) 291-5894.

AST Canada cuts prices

Markham, Ont.-based AST Canada has lowered prices on certain Bravo Desktops and Aventis notebooks.

For example, the Bravo NS-6256 with an Intel Pentium II 333MHz processor with MMX technology, 32MB of RAM, a 4.3GB hard drive, a 24X CD-ROM drive, and a 10/100 Ethernet card, will have a new suggested selling price of \$3,699 — down approximately 17 per cent. The Bravo LC 5200 with an Intel Pentium 200MHz processor with MMX technology, 32MB of RAM, and a 2GB hard drive will have a new suggested selling price of \$1,649 — down about 13 per cent. AST cut the price on the Aventis M5160 notebook with an Intel Pentium 166MHz MMX processor, a 13.3-inch XGA TFT display, 32MB of RAM, a 1.16GB hard drive, a 20X CD-RW and AST's optional ExpressOne overnight notebook exchange program. It will have a suggested selling price of \$5,099 — a reduction of approximately \$300. See <http://www.astcanada.com>.

Results sells tool for resellers

Merkham, Ont.-based Results International Sales Automation Systems is selling a quotation management system aimed at computer resellers, called iQuote 3.0.

The quotation management system is designed to quickly generate accurate quotations as part of the business process, with tight integration with contact management and accounting functions.

The product creates, manages and closes sales quotations. It incorporates a company's price book and customer lists to provide instant access to information and increase efficiency, says Results.

Including software, configuration, set-up and training, the product starts at about US\$80,000. That can also include the customer management piece — currently the Manager product. And some of the training can be done remotely, over the Internet, explained Christopher Whistler, manager of business development for Results International. ■



Contact: The Editor

LETTERS

Canadian Computer Wholesaler welcomes your opinions on current issues in the market; plus your feedback on our publications.

NEWS

We welcome your ideas regarding news and feature topics for Canadian Computer Wholesaler. Feel free to contact the editor directly with your suggestions.

TEST LABS

We'd like to hear your feedback and suggestions on our Test Lab reviews section.

Pleasant Notes

To: Gabor, Canadian Computer Wholesaler
200-10750 Keele Ave., Toronto, Ontario M3J 1J8
Fax: (416) 588-6518
E-mail: gabor@ccw.ca

Editor (Grace Gieselman)

E-mail: grace@ccw.ca
Fax: (416) 588-7052 E-mail: johnt@ccw.ca

Contact: Steve Havelock

E-mail: shavelock@ccw.ca
Fax: (416) 588-6274 E-mail: shavelock@ccw.ca



Super Strength!
Super Power!
Super Speed!



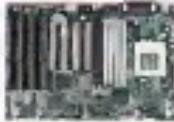
SUPERMICRO

**The technology leader that lets you experience
PC 98 • J-Z™ • AGP • 440 LX... advantage**

10 Ready!



SAFETY FEATURES **Passenger** **Front** **Side** **Rear**
Driver's Side Airbag Standard Front **Side** **Rear**
Front **Side** **Rear** **Side** **Rear**
Driver's Side Airbag Standard Front **Side** **Rear**
Front **Side** **Rear** **Side** **Rear**
Driver's Side Airbag Standard Front **Side** **Rear**



PL 99-504P



- ✓ **Data Processing**
 - ✓ **Point tolerance**
 - ✓ **Thermal Control**
 - ✓ **Redundancy**
 - ✓ **Power**
 - ✓ **HSR**



CE

• All human PC systems exhibit functional tests

• 11 hours volunteered police as guest speakers

• Wenn das nicht so läuft, was kann?

► Detailed menu options for each section

Samtack

We welcome reseller inquiries.

Markham Tel 905-468-5110 Fax 905-468-0333
Markham Tel 905-662-5555 Fax 905-662-5555

Call 1-888-8-PINEPC

Chengdu Shuangliu International Airport

Vancouver Tel 604 214 3800 Fax 604 214 3804

The Price For Principles

Sure, respecting software licences and copyright is the right thing to do.

But what happens when your customers demand illegal software copying, or no deal? It happens.

Just ask Kitchener, Ont.'s Stefan Myles about the moral high ground versus profitability.

by Paul Weisberg

What do you do when your client insists upon the acceptance of something illegal as part of a contract?

In Stefan Myles' case it meant pulling out of the business as fast as possible.

A self-described "computer guy," the Kitchener, Ont.-based VAR normally purchases products on behalf of a customer and then configures them together as part of a network. For the most part he does office automation and his target group tends to be non-for-profit organizations and small business. "I serve the lower budget end of the market that can't afford the \$100 to \$300-plus fees that some companies charge."

In a bit of a departure, Myles says he recently became involved with a major project at an engineering firm — a multi-branch business in southwestern Ontario, which required some networking assistance. As it turned out, because of some difficulty connecting two of the workstations, he began an audit of the entire installed hardware and software in order to avoid any further surprises. "I wouldn't have conflicts with video drivers and network cards if I had a list. I could have the answers ahead of time."

Immediately, Myles started to notice that all the serial numbers for the operating system and major applications — office

package in its possession for all of the computers in the network, thereby breaking contractual agreements with vendors that stipulate one licensed copy per machine. "They were very matter-of-fact about it and more annoyed with me, that I couldn't continue on with the installation."

As a Microsoft OEM authorized dealer, Myles did not want to jeopardize his legal position and "be a party to a crime." But the contractor's response was that it was merely his problem. "It was all of a sudden my fault. I had done something wrong. They were telling me I had signed a contract with them that predated my contract with Microsoft."

So he withdrew from the situation, and says he lost thousands of dollars in potential work if the copying issue had not come up. Myles says he might have eventually run up for his client an NT server, E-mail, and multiple internet access. Subsequently, another reseller took on the job.

Since then, Myles is much more careful when considering similar projects. He may intervals to be upfront with future contractors about his requirement that the client fully respect software license agreements. "I am concerned for other resellers. There are a lot more people hanging their shingles out as computer consultants. Do they realize what

"I am concerned for other resellers..."

Do they realize what kind of trouble they can get into, especially in a large-scale situation?"

— Stefan Myles

suites and vertical applications — were the same. Myles said, "I didn't think this was unusual, as often software is installed on multiple machines from one set of disks or CDs or a network share, with the hours and licenses left unopened on a shelf." However, when he asked for the other license numbers to update the list for the records, it turned that the other party was using one copy of each software

kind of trouble they can get into, especially in a large-scale situation?"

Norm Dupuis, anti-piracy marketing manager for Microsoft Canada says he has the sense that violations of licensing agreements are more likely to occur in smaller organizations

which cannot afford an IT department, where a software policy is more likely to be established. In the last three years in Canada, the level of piracy has dropped, but the overall lost revenue in piracy has gone up, he notes.

Lawyer Barry Sookman, a partner with McCarter & Tétu, in Toronto, said he has been protecting himself going into the job. Myles should have had a clause included in his contract that would have indemnified him against being connected with any infringement event. Myles has since added this into his contracts.

Microsoft's Dupuis is also a member of the Canadian Alliance Against Software Theft (CAAST). CAAST has made some major efforts on the anti-piracy education front (which have been sterilized, of late). However, Dupuis says that in 1996 in Canada, 42 out of 100 word processing packages in use were pirated, compared to 27 in the U.S. in the same year. "It is not a question of Americans being more law-breaking," he suggests, but a matter of U.S. groups like the Business Software Alliance meeting with a "more aggressive and vocal" approach towards violators, as well as a greater proclivity towards litigation south of the border.

Dupuis is also adamant that there are no exceptions to the requirement at Microsoft that it is one licensed copy per machine, even in scenarios when an individual might be using one PC at work and another at home for his job. "He must pay for two copies."

Software version like Microsoft in this country here had no difficulty obtaining a judge's permission for a search of a party's premises if there is a strong belief that illegal copying of their applications is taking place, says Michael Eisen, a Toronto lawyer with Morris/Rosen/Ladigay. "The civil search and seizure order is most likely in connection with intellectual property disputes." ■

Paul Weisberg is a Toronto-based journalist who specializes in high-technology reporting. He can be reached at pweisberg@juno.ca.



Buy Direct From The Manufacturer And Save A Lot More!



Rainbow Series



3T Series



Echo Series



ISA Processor & Ultra-Li
Motherboard



PCI-2711 Dualport
with Phoenix Dual
Cache Processor
Motherboard



V7400 Intel DX Motherboard

MAXTECH

High Quality Monitors
by CTC Corp. - Selangor



Media 1700
17" Monitor



Media 1900
19" Monitor



Mega 1900
19" Monitor

CAS

Cotec Advanced Systems Inc.

3145 14th Avenue, Markham, Ontario L3R 0B1
Tel: (905) 513-6388 Fax: (905) 513-7329
Web: www.c2t-industry.com

Please
call us today
for more selection
and exceed
pricing.

CE @ RU

Pushing The Envelope On PC Entertainment

by Paul Weisberg

What will it take to make the computer a truly fun device and not just a boring business productivity tool?

Multimedia products are already available, and often relatively inexpensive — games software, for example, that entertainment on the PC is still very much an after-thought for most consumers. PCs, even as they dip below \$2,000 at the low-end, are still too expensive for casual use, compared to other consumer electronics products like the \$200 VCR.

The Intel Pentium machines do feature three-dimensional graphics capabilities in the processor but those systems are particularly price-prohibitive for the average consumer. On the other hand, some technologies like the digital video disk, more visually appealing than the VCR in the presentation of movies on the PC, are not ready for market acceptance because of competing standards and manufacturing delays.

Richard Morechene, industry analyst and president of Toronto-based Morechene & Associates Inc., who notes Microsoft's delay in the introduction of the next version of its Windows operating system, which he says should take full advantage of DVD's capability.

Reflecting the uncertainty surrounding DVD in the industry,

Toronto channels specialist Bob Pechukas, president of the Toronto-based R.J. Pechukas & Associates, adds, "It's not

the loose change in my pocket that DVD will finally move the PC into the entertainment market."

There is already a lively games software market, where successful vendors meet the insatiable demand. For mass rotation and special offers in movie advances and soundtrack sales from a largely young male clientele. Games software represents 50 per cent of the entertainment PC products sold, says John Ingerson, national retail sales and marketing manager for the Mississauga, Ont.-based Microsoft Canada Ltd. Also, 20 per cent of the game sales drive 80 percent of the games business, he notes. In terms of the after-thought argument, he says: "Very few people buy PCs to play [Microsoft's] Flight Simulator, but that hasn't stopped it from being a top-seller. The challenge is to find new users for the PC."

IBM Canada Ltd.'s Active marketing manager Ray Hynes defines two types of consumers of PCs: the "explosive" who is seeking the latest in technology and the "progressive families" who are buying the systems for a whole bunch of reasons, including entertainment.



Quality Service, Selection and Support; TKP Delivers!

CD-ROM



Acer • TOSHIBA • Panasonic

NETWORKING



int'l. **QCM** 3Com

FAX MODEM



QCM **Ethernet**

SOUND CARD



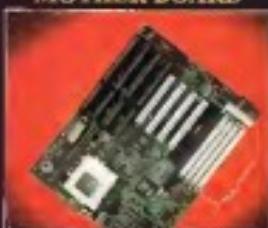
SCSI **PCI** **Acer**

HARD DRIVE



Maxtor **Quantum** **Western**

MOTHER BOARD



ASUS **SIGABYTE** **DFI** **Corsair**



From a full line of components from leading manufacturers to custom-configured systems, look no further than to TKP for all your needs. Let our reputation, large purchasing power and many years of experience in the computer industry work for you. Make TKP your one-stop solutions provider. For further information, please contact your TKP sales representative at (604) 279-0320.



Wholesaler | Computer Supplier

www.tkpcanada.com

#118 - 13982 Cambie Road, Richmond, B.C. V6V 2K2

Tel: (604) 279-0320 Fax: (604) 279-0321

Seasoned consumers, already using a PC for home office purposes or as an educational device for their children, "have gone through the learning curve and now they are using the technology for other things," says Rivers at Maritzan, Del-based IBM.

At the moment though, home PC sales are flat. Susan O'Dell, a Mississauga, Ont.-based retail analyst and president of Service Dimensions Inc. suggests that the consumer market is saturated already because all the people who need PCs and can afford them have purchased them.

Some rebound in the home market may be occurring now with a slightly improved economy, according to computer industry analyst David Ryer at the Maritzan, Del.-based A.C. Nielsen & Co. of Canada. However, revenue for consumer PC purchases was down by 19 per cent in 1997 compared to 1996, he says, contrasting that trend with the 1993-95 period when entertainment purchases appeared to be "exploding."

Some major vendors like Toshiba are abandoning the consumer market entirely and sticking with the more reliable business buyer, adds Ryer. He has noticed that system bundles in the retail channel

are containing less software of late, including entertainment items, and are "more hardware-driven."

Nevertheless, Microsoft Canada has found that entertainment products continue to be a major draw in the retail channels, according to its survey of software purchasing decisions by about 6,000 consumers in 45 different retail outlets across Canada between April 1998 and April 1999.

Forty-three per cent of those interviewed stated they were shopping for an entertainment or games product, compared to 26 per cent seeking business management tools, 19 per cent for home productivity/dissemination and 17 per cent for children's software (covering both education and entertainment or education). Those are averages — in some stores entertainment is up as high as 30 per cent of purchases.

Microsoft concedes that 81 per cent of the all software buyers are male, compared to 19 per cent who are female. For entertainment alone, it is slightly higher with 87 of the purchases done by males, compared to 13 per cent for women.

Entertainment/games continues to attract a young male demographic, with only 37 per cent of the consumers 35 years or older. In contrast, the average consumer of a business management application is 35 to 34 years of age, which may speak volumes about which generation has the good jobs these days. Also, women who shop for entertainment/games tend to be 35 years or older.

Microsoft's Troyne suggests that men buy for themselves while women are shopping on behalf of someone else, presumably for a younger person. In terms of children's software, the number of male purchases drops to 69 per cent, while women buyers check up to 31 per cent.

Troyne said retailers have to make "the mental leap" to accept the notion in the trade that rapid turnover of products in specific areas on the shelf is more significant over the long haul than short-term profit margins on isolated sales. Such turnover could range from 12 to 24 times for an item in a single year, he suggests.

Troyne cites the common problem of retailers running out of stock of popular items as a result of mistaken planning and positioning of software products. In its survey of reasons by consumers for not buying anything, Microsoft Canada found that 48 per cent of shoppers walked out of a store because they could not find what they were looking for, versus 36 per cent who cited dissatisfaction with the pricing, 10 per cent who were just browsing and two who were upset with the service.

Patrick Medini, research director at the Stamford, Conn.-based Gartner Group Inc., notes that some manufacturers have tried to make PCs more beautiful in order to make them more appealing for a home environment. But this is merely "cosmetic," he says.

Medini suggests that "the box with the monitor has to be broken down" in terms of design and then "applied" into various application factories before new possibilities can arise. Already, the box and pieces of this trend are in place, blurring the boundaries between business and non-business use, such as Web TV, handheld computers and digital papers. **OF**

Paul Weinberg is a Toronto-based journalist who specializes in high-technology reporting. He can be reached at pweinberg@interlog.com.



according to computer industry

analyst David Ryer at the Maritzan, Del.-based A.C. Nielsen & Co. of Canada. However, revenue for consumer PC purchases was down by 19 per cent in 1997 compared to 1996, he says, contrasting that trend with the 1993-95 period when entertainment purchases appeared to be "exploding."

Some major vendors like Toshiba are abandoning the consumer market entirely and sticking with the more reliable business buyer, adds Ryer. He has noticed that system bundles in the retail channel

The Desktop Replacement.

Model 8500 - Order Now!



EUROCOM:

tributed by Impaq Technology

All 15" Eurocom models feature 160MB hard disk and hundreds of thousands of graphics memory. Impaq offers something for every need and budget. Eurocom - leader of many exciting industries! PC-Portable, BePC, and Computer From The Future®. Please call

Customer 1-800-260-0222 or Canada 1-800-260-0222

BEST BUY
PC Portable
Award-Winner



IMPAQ





ct

If that's not enough...

Iwill[®] let's you move data faster & safer with mid to high-end **Adaptec SCSI** based system boards.



PIIIS

P55XUW

DPIIIS2

SCSI based Pentium II

- Slot 1 ready for Pentium II CPU
- Adaptec Ultra/Ultra Wide AIC-7890 chip embedded
- Ultra DMA/33 ready
- AGP 2x ready
- 168 Pin DIMM, up to 512MB SDRAM or 1024MB EDO
- Intel AGP X with BGA
- RAID option available for 0, 1, 0/1 & Level 5
- Scalable model available without SCSI onboard

SCSI based Pentium

- Pentium Socket 7 supporting Intel, AMD and Cyrix CPUs
- Adaptec Ultra/Ultra Wide AIC-7890 chip embedded
- Ultra DMA/33 ready
- 1 x 168pin SDRAM or EDO and 4 x 72pin supported, up to 256MB
- RAID option available for 0, 1, 0/1 & Level 5
- Mass PC98 with 2MHz full feature flash ROM memory
- Scalable AT form factor

Dual Pentium II & Dual SCSI Channel Motherboard

- DPIIIS2 uses Adaptec AIC-7890 SCSI ASIC, which is a PCI to dual channel Ultra Wide SCSI single chip for applications requiring high throughput and integration. It can connect up to 38 Ultra Wide SCSI devices and offer data transfer rate up to 106MB/Sec. and is equivalent to AHA-3945U/W
- AGP 2x Ready
- Support 4 x 168 Pin DIMM up to 512MB SDRAM or 1024MB EDO memory
- Ultra DMA 33 interface
- IDE 3.5" Standard Flash ROM BIOS
- SCSI drives host before ADAPFI-IDE, Bootable CD-ROM, FFC352ATAPI-IDE, Universal Serial Bus, Desktop Management Interface
- All necessary cables included
- Floppy cable (34 Pin) with 4 heads, IDE cable (40 Pin) with 3 heads, SCSI (39 Pin) with 3 heads, Wide SCSI (68 Pin) with 3 heads, External SCSI Int.
- Scalable available with single SCSI channel and RAID option

Complete product selection find us online



www.bromarsystems.com

Canadian Distributor

BROMAR
Systems Inc.

Tel: 1-800-988-4800 or 905-731-4800

Fax: 905-731-4800



All brand names and trademarks are the property
of their respective owners.
Specifications are subject to change without prior notice.

Iwill Corporation

No. 10, 8/F, Chancery I, 16/F,
West Cheshire City, Tuen Mun, Taiwan
Tel: 852-2779-9117 Fax: 852-2790-0300
http://www.iwill.com.tw

DATA STORAGE TECHNOLOGY

Racing to Keep Pace With Exploding Demands

by Jeff Evans

Storage technology is one of the fundamental building blocks of computing, but it often tends to be ignored, particularly at the retail PC level. For the average desktop PC, it often seems that storage is a non-factor: a floppy drive and a hard drive. What could be simpler? Well, behind the comodious, "parts-of-the-world" mentality, storage technology is one of the most vibrant and vital segments of the computer industry.

Areas of particular opportunity for suppliers include mass storage backup systems such as Iomega's Zip and Zip drives, Fujitsu's Magnetic Optical MO drives, and new high-capacity floppy drive formats such as the 1.8" 120, DVD technology is still in its early stages, and has some issues to resolve, particularly around re-writable disk compatibility with playback-only technology.

A Place For Everything

The markets for storage technologies can be looked at either in terms of technology (hard drives, tape, CD-ROM, solid state), or by user and application category (desktop PC, notebook PC, server/workstation).

Plain Vanilla

The basic PC, whether Windows or Mac, comes with a 3.5-inch floppy drive, and, as late 1997, at least a 1.2GB hard drive. According to Ned Robertson, the marketing manager for storage products for Fujitsu Canada Inc., the Enhanced IDE format of hard drive completely dominates the mid-range desktop PC market, and the typical hard drive size tops out at about 6.4GB (from 1.2 to 1.4GB). All hard drive vendors sell their hard drives to PC makers, either directly, or through distributors. Some manufacturers also do retail hard drive packaging for the PC upgrade market. (Fujitsu does this in the U.S. market, but not in Canada.)

The floppy drive market is a low-margin commodity category, and Fujitsu is one of the major suppliers in Canada, selling several hundred thousand units each year.

Faster And Bigger

At the recent Comdex in Las Vegas, new high-capacity hard drives, up to 47GB were shown by Seagate Technology Inc. (For information on the Elite 47, see <http://www.seagate.com/seagatelite.htm>) aimed at the server or high-end workstation market. Seagate unveiled its 10,000 rpm super fast Cache drives and Fujitsu claimed that its own 10,000 rpm drives will be coming in early 1998.

SCSI drives, very popular on Apple desktop PCs, are standard on servers and "personal workstation" PCs. Typically, new high performance hard drives appear in SCSI workstations first, as "high-end" and "power users" are more willing to pay the usually higher prices. As more producers produce high-speed and prices



begins to drop, then EIDE versions for the mainstream desktop market are introduced.

Quantum Corp. (<http://www.quantum.com>), a US\$5.3 billion hard drive maker, is also a major mover in high capacity drives, and Micropolis (<http://www.micropolis.com>) will be early leader in higher capacity hard drives with its second generation Thorswerk 9.1GB and 18.2GB models.

The run up in hard drive size has been rapid, and according to industry projections, steady improvement will be possible for about another 10 or 11 years, until the physical limitations of magnetic media are reached, and other more exotic storage technologies have to be adopted.

New Floppies

The traditional 3.5-inch floppy is still almost universal, although the 1.8 130 floppy format, which has a capacity of 10MB and is backplane-compatible with high-density floppies, is gaining a degree of acceptance from PC makers such as Compaq, Acer, Sony and Fujitsu. (<http://www.compaq.com>, and <http://www.fujitsu.com>) have jointly announced the HiFD, a new 3.5-inch 200MB floppy system.



Iomega: In A Class By Itself

Iomega, which for many years was as also-ran in the removable storage media market, trailing behind longtime leader SyQuest, has achieved an amazing reversal of its status in the storage market. With a combination of great products like the Zip and the Jaz cartridge drives, combined with brilliant marketing, Iomega has become the market leader in removable mass storage. At last year's FallComdex, Iomega announced its intention to move into new products such as its 2080 version of the Zip drive (backplane-compatible with the 1.8GB version) and the ultra-compact removable Click device. (<http://www.iomega.com>)

Solid State And Flash Storage

One alternative to hard drives and cartridge storage medium is storage using memory chips. Quantum is a leader in solid state drives, which though much more expensive than a traditional disk drive, are also much higher in performance. Quantum's Rushdrive drives have a capacity up to 900MB, which is a lot of memory chips on one card. At the lower end, a whole new world of handheld, handheld computing is being facilitated by the emergence of flash memory cards, which can be used in digital cameras, notebook and handheld PCs, to name for greater data storage and transferability.

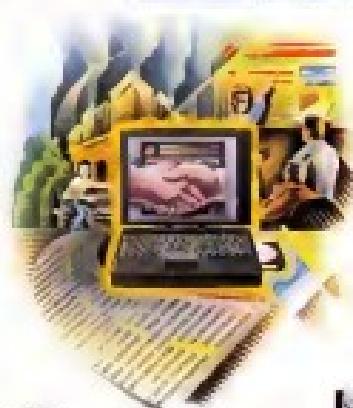
**When good people come together,
There can only be good product**

Presenting

 **TEXAS INSTRUMENTS®** by **Acer** 

Extensa₆₇₀

A FRESH PERSPECTIVE



Extensa 670

1-800-665-1858
www.acer.com
email: info@acer.com

Extensa 670 features a sleek, modern design and a range of powerful processing options to help you stay ahead of the competition.



EXTENSA 670 Series
Pentium processor with MMX technology
13.3" or 14.1" TFT LCD, expandable to 15.4"
12.7 MB or 16.7 MB Hard Disk Drive
1.0GB or 2.1GB removable hard disk
SerialPort (RS-232C)/1-4400 Ethernet
1 year parts & labor warranty
24-hour/7-day customer technical support

TRAVEL MATE 7000 Series
Intel奔腾® Processor 1.7 GHz Memory
Pentium processor with MMX technology
23.8 CM (9.3") TFT LCD, expandable to 14.1"
2.1 GB Hard Disk
12.1" TFT Active Matrix Display
SerialPort (RS-232C)/1-4400 Ethernet
Integrated 10.4 MB Hard Disk and 800 MB
Optical/DVD-ROM 8x/CD-RW 4x
AC/DC Adapter (12V/4.0A Max)
1-year parts & labor warranty
24-hour/7-day customer technical support

Compact Disk Recordable (CD-R) And DVD

Devices that allow PC end-users to write their own CD-ROM disks have dropped in price to well under \$1,000, with blank recordable disks costing less than \$10. But ironically, just when this storage medium seemed poised to become quite widely used, the higher capacity DVD format has emerged, along with a number of competing re-writable DVD formats. The result is that compatibility issues are now up in the air, and the market and the competing consortiums make which format will become standard and compatible. In the meantime, CD-R products such as the SyQuest Technologies (<http://www.syquest.com>) Memore CD-R, 20X, have reached a high degree of maturity, in terms of ease of installation and use. Compaq (<http://www.att.com>) makes a 40X CD duplicator that comes with its internal hard drive and CD reader, as well as the recording drive, and which can be used either as a stand-alone device, or connected to a PC.

**CD-ROM And DVD-ROM Drives**

The original single-speed CD-ROM drives had a read speed of 150KB/sec. Current CD-ROM drives have speeds of between eight and 32 times that rate. Down at the 8X end of the spectrum, read prices range as low as \$30. The 24X and 32X speed models still have some margin potential, but CD-ROM drive manufacturers such as Creative Networks Inc. (<http://www.creativenet.com>) are in the process of displaying CD-ROM drive capacity in their manufacturing plants, anticipating that 50 per cent of drive production will be in DVD format by the middle of 1998.

Mainframe And Workstation

Above the PC level, many of the major server and mainframe-related companies offer high-end storage library solutions. These include tape, MD, hard drive array and CD-ROM robot library systems from vendors such as HP and IBM. Traditionally, these systems run under UNIX or some other high-level operating system, but Windows NT storage library solutions are rapidly being developed as well. According to IBM Corp. (<http://www.ibm.com/storage>), "Industry analysts project the open systems-UNIX storage business to exceed \$72.3 billion in revenue by 2000."

If you want to see the future of storage on the desktop, the place

NIPPON TECHNOLOGY INC.



#525 - 3771 Jacombs Road, Richmond, BC V6V 2L9

Tel: (604) 214-8828 Fax: (604) 214-8829

TOSHIBA



32X CD-ROM

Model XM-6200B
Cache: 256K
Transfer Rate: 4Mbps

TOSHIBA 24X CD-ROM

XM-6100B, 24X speed, 3.6Mbps transfer rate

TOSHIBA 12X CD-ROM

XM-5012B, 24X cache, 1.8Mbps transfer rate

Panasonic[®]
OR
CREATIVE
CREATIVE LABS, INC.

**24X CD-ROM
DVD Dxr2 kit**

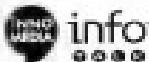


Cyber A Corp. Ltd

50X x2 DVD Modem + 32 Sound Wavefile
IBM Micro Chip & IBM DSP Technology
Full duplex, full telephony browsing machine
MS Windows logo approved



50X Flex (Rip/Write), PnP or jumper
32 bit, PnP, Voice, Full duplex



Our Long Distance, Pay Local Charges
No Computer Required
Communicate through the Internet

We also
carry:



3Dfx Interactive Card

HITACHI

Modem PC
1MB 32X built-in Modem



TOSHIBA

Notebook hard drive
3.2GB MR.2500MMAT 2.8" 12.7mm
5.1GB MR.2165MMAT 2.8" 12.7mm

All products in stock. Dealer inquiry only.



When we designed our
**new high capacity drive, COMMON SENSE dictated it
should also work with standard diskettes.**



"Over 200 million drives sold
the uncompromised choice." PC

The fact that we make the best selling brand of standard diskette
had nothing to do with it.

Okay, so maybe it had a little bit to do with it. But the big news here is that with our new SuperDisk® Drive, you can access 120MB of storage, up to five times as fast as standard floppies. And here's the kicker: It still works with 1.44MB diskettes. Just plug it into your PC's parallel port. Or look for SuperDisk LS-120 drives built into new PCs.

To make more room, call 1-800-241-1866, ext. 3671 or visit www.imation.com.



IMATION
Home of **SuperDisk**



to look is at the high end, where vendors such as StorageTek (<http://www.storagetek.com>) offer tape-backup systems with over a terabyte (1,000GB gigabytes) of capacity, and transfer rates of up to 14Kbytes/sec.

At the high end of the storage market, SCSI-based solutions from

vendors such as Digital and Compaq are expected to grow rapidly in market share, using the new Microsoft clustering technology to support huge data storage workstations. Now, high-speed technologies such as Fibre Channel interconnect (which allows data transfer within a server at rates of up to 10-Gbytes/sec) will become more common, as well as innovations such as Serial Storage Architecture (SSA) which will increase the capacity of multi-server networks.

What's New In Storage?

There are always new storage formats being rolled out, in the hope that the market will see their usefulness, and 1997 was particularly rich in new products. The QDB, from Castlewood Systems (<http://www.castlewoodsystems.com>) is a magnetic-mirror drive, which creates 2.6GB disks at a cost of US\$199 for the drive and US\$29.95 for the disks.

From Micro

Windows NT And Mass Storage

One of the oddities of Windows NT has been that even as that operating system has made spectacular progress in the server market, there is still not an integrated disk defragmenting utility for NT. The big winner from this lapse is Executive Software (<http://www.execsoft.com>), whose Diskkeeper for NT is a "must-have" third-party utility for virtually any NT system. Microsoft will include a licensed, stripped-down version of Diskkeeper (similar to the less version available from Executive Software via download from the Web) in its upcoming release of NT 5.0.

The Network Is The Hard Drive?

Just when the PC is becoming easier and cheaper to manage in a business environment, an attempt is being made to sell big business on the idea of the Network Computer (NC), typically a thin-client computer that will run Java software, or, in evolution, Windows applications. In the case of the NC, the old saying "the network is the computer" translates into "the server is your hard drive".

In many cases, the NC's lower cost of ownership will make it attractive for limited ranges of applications, but in other cases, questions of local desktop storage and network bandwidth (not to mention user preferences for a full featured, flexible PC) may reduce acceptance over the NC. Desktop PCs may not very popular, at least initially, due to lack of a local disk. This makes them very dependent on the network.

Best Bets?

The volume storage products at the retail level in 1998 may include

- Iomega's entire product line,
- hard drives with over 30GB of storage,
- flash memory cards for digital cameras, and,
- high-speed CD-ROM upgrades (which may include replacement DVD drives).

Many other storage products may offer lower volume but higher margin opportunities (such as MD drives, for applications where the need for durability offsets the higher price) to the reseller who is prepared to position the storage market for its many, varied, and rapidly shifting needs. (ED)

Jeff Evans is Associate Editor of Canadian Computer Wholesaler. He can be reached at jef@jefcorp.com

WETHING

MONITORS

WETHING MI564B 6.35" or MRP11

WETHING MI570B 6.35" (O.S.D.) MRP11

WETHING MI762B 8.33" (O.S.D.) MRP11

• 1280 X 1024 NI

• H.F. 30-50 KHz

• V.F. 50-120 Hz

• Plug & Play

• DIGITAL
CONTROL

• 3 YEAR
WARRANTY



Best prices
Call now!

COMMERCE NOUVEAUX HORIZONS

Tel.: (514) 866-2992 Fax: (514) 866-0132

YOUR ONE-STOP SOURCE!

Broad Selection • Competitive Prices • Brand Names

SCEPTRE SOUNDX 5500:

- 233 MHz Intel Pentium® Processor with MMX™ Technology
- 13.3" TFT XGA Display (1024x768)
- 128 bit Accelerated Graphics (16.7 M Color)
- 48 to 144 MB EDO RAM
- 3 GB Hard Drive
- 16x CD-ROM

SOUNDX™
SCEPTRE®



SCEPTRE SOUNDX 4500:

- 100 to 166 MHz MMX CPU
- 16 to 64 MB RAM
- 1.0 to 2.0 GB Hard Drive
- 12X CD-ROM/FDD Module
- 12.1" SVGA TFT Display
- 128 bit Accelerated Graphics
- Advanced Modular Design



"This system was a great performer on our tests, garnering the round up's highest graphics and processor scores." Jan 21, 1997

Motherboards



Acer • ASUS

Pentium 100-200 MHz
Prophet II 386 & IV
Prophet II

Hard Drive



Quantum Maxtor
■ WESTERN DIGITAL
■ Seagate TOSHIBA
■ IBM AT&T JAPAN TEC

Monitor



■ Flat & Flat
■ PVA, Cell
■ SCEPTRE

Notebook



SOUNDX™
SCEPTRE

Pentium 100 to 166 MHz with 128 MB RAM
Screen: 12.1" with 800x600 pixels

LCD



SCEPTRE
Screen: 12.1" High resolution,
No reflection screen face panel
Fast AC/DC adapter to
connect from regular wall or desk mounted.

Multimedia



CINTECH Electronics, Inc.

Cases & P.S.



■ KME
Tower or desktop cases
with power supplies
ATX cases available

Keyboards



■ UTEK
■ FOUJITSU
■ KeyTronic
■ IBM Enhanced Keyboard
■ Windows 95 Keyboard

Mouse & Trackball



■ WinMouse
■ DELL
■ Logitech
■ 3D Mouse

PCMCIA Cards



Fast transfer in 100ns



LAPRO Marketing Corp.

120-3011 JACOBUS ROAD, RICHMOND, BC, V6V 2M8 TEL: (604) 231-1026 FAX: (604) 231-1026

Web Site: <http://www.lapro.com>

All brand names are registered trademarks of their respective owners

Dealers
Wanted

Dealers
Wanted

Storage Research: The Trials And Triumphs

Researchers at IBM face huge challenges to support the skyrocketing storage needs of the information age.

By Chris Langham

Consider the amount of data a Fortune 500 company had to store in 1970, on average — about 1GB. Then, for a supporting thought, consider the fact that by the year 2000, the average Fortune 500 organization's storage needs will have grown to 60,000 or 70,000 times that, up to 30 terabytes (TB).

That's according to studies compiled by IBM and other market research organizations, said Jerry Bassett, marketing manager, large systems storage, Storage Systems Division at IBM Corp., during a recent briefing session in San Jose, Calif. "We'll ship more platters this quarter than any other quarter," he said.

IBM should indeed know where storage is heading, claiming to have a US\$3.2 billion capital investment in the storage business. About 300 of IBM's 2,800 technology researchers are devoted to storage-related matters. And Frank Balloch, vice-president, worldwide market operations for IBM storage systems division, said 10 to 12 per cent of the company's US\$37.9 billion budget is attributable to storage revenues. (According to market research firm International Data Corp., IBM is the revenue leader worldwide in storage products.)

And while we hear a lot about Moore's law of growth in microprocessor speeds, it seems the development gains in computer storage are more, too, shoddy, either. IBM says prior to 1991, the amount of bits that could be stored in a square inch of storage media grew 30 per cent annually. But with the introduction of magnetooptical technology in storage, that growth rate has jumped to an impressive 60 per cent, and held. And while capacity has been increasing, costs are coming down. In its highest-end tape products, IBM claims to be selling storage at less than one US\$1 cost per megabyte.

On the desktop front, IBM has just started shipping a 16.8GB hard drive. For those looking to visualize this, consider eight hours

of full-motion video. IBM also compares the space to 16 floppy disks full of printed information.

The technology behind that drive is significant, as it incorporates an enhancement — Granular Magnetic Recording (GMR) heads. By the year 2001, IBM says that GMR technology will lead to packing in 10 billion bits per square inch on the hard drive "disk," which is called a platter. By 2004, that should be 40 billion.

But, of current growth rates continue, says the company. (Now, IBM's new ThinkPad 620 portable notebook drive boasts three billion bits per square inch in that 4.10B product.)

In the tapeless arena, IBM says its GMR heads are more sensitive to magnetic fields, from



Is It a Coincidence?

You didn't expect to find the most advanced LCD (FT15+) and CRT (P97A) technology available on the same page, did you? But be assured it is no coincidence.

Because...

Both are backed by Sceptre's unwavering commitment to manufacturing excellence and innovation.

Both are fueled by Sceptre's unwavering commitment to product availability.

Both are backed by Sceptre's unwavering commitment to provide the highest level of customer service.

Both are members of a family that includes some winning products, including the Sceptre P97A 17" CRT monitor.

Technical Excellence Award, "the most bang for the buck,"
Canadian Computer Retailer August '93

Both are rapidly recognized as a source of leading edge display products.

Related to the simplest terms, both are Sceptre.

For more information about Sceptre's complete line of CRT and LCD display technology call 1-800-388-9948 or visit our web site at www.sceptre.com.



SCEPTRE™

THE FIRST, THE BEST, THE ONLY

Visit Us At Comdex Fall '93, Booth #1302

the platter. This means more bits can be stored in less space, as the heads can better read the signals. These fields are created by the "write" portion of the head, which passes over the bits on the platter, magnetizing them to orient in one direction or another, which translates to either a 0 or 1 — the binary information that the computer needs. The most sensitive GMR heads are needed to decode the bits that are crammed into smaller and smaller spaces.

IBM's scientists say the 60 per cent growth rate in storage capacity can only go so far using current materials and technologies. Hence,

researchers are experimenting with radical storage media.

For example, that includes holographic storage. Instead of just recording data on a surface like a hard drive, it uses the entire thickness of a medium, such as a crystal. The writing is done by crossing two laser beams. According to IBM, holographic storage could store

as much as 12 times the capacity of today's biggest hard drives. Meanwhile, read rates are much quicker as well, and data integrity is greater by this method. IBM says holographic recording is "coherently parallel," allowing one page to be stored and read at a time, which is appealing for storing images. Data transfer rates are reportedly up to one gigabit per second.

Even more fascinating is the concept of storing data with atoms. In 1999, IBM researcher Don Eigler gained renown for arranging 35 xenon atoms on a nickel surface to spell "IBM" using a scanning tunnelling microscope (STM). According to IBM, the density of such storage is about one million gigabits per square inch. But while such storage is incredibly dense, efficient read/write capabilities are still lacking.

The eventual goal of such groundbreaking research, said John West, director, IBM Almaden Research Center and IBM Research Division vice-president for storage, is to "build computational devices out of atoms." But as demands from the market increase, and as research continues, "it will eventually lead us to understanding what we need to do to build computing devices on that kind of scale."

By using an atomic force microscope (AFM) and a pen-like tip in contact with a rotating surface — think vinyl record and needle as an analogy — IBM scientists have recorded densities of 25 gigabits per square inch.

Stan Peck, director, end-user research at Toronto-based International Data Corp. (Canada) Ltd., said as more looks to store video, video and space-hungry images, storage needs will only increase. "The demand is insatiable; it's just a fraction of price." And he said IBM is "head-down" about turning its research into marketable products.

"1999 is the year we're going to require significant more disk space," said Greg Michalek, president of Edmonton based consulting firm Michalek & Associates Inc., also citing voice and video applications. "20GB hard drives will look pretty small very quickly."

"The challenge of data is to cope with the growth and provide access, management, movement and security," said IBM's Eileen. "We're driven by customer requirements." ■

Glen Cummins is Editor of Canadian Computer Wholesaler. She can be reached at glen@netcom.ca.

How big is THAT?

IBM is already talking about storage not only in terms of terabytes, but in petabytes. If you don't know those words now, you'll need to learn them soon.

units	bytes
Kilobytes	10^{30}
Gigabytes	10^{33}
Terabytes	10^{36}
Petabytes	10^{39}
Exabytes	10^{42}
Zettabytes	10^{45}
Yottabytes	10^{48}

Hard Drives

Western Digital

1.2GB IDE
1.6GB IDE
2.5GB IDE
3.2GB UDMA
4.0GB UDMA
6.4GB UDMA

CPUs

Pentium 100MHz
Pentium 200MHz
P-320MHz MMX
P-320MHz MMX
T-Pentium 100MHz
P-Pentium 200MHz
Pentium 333MHz
Pentium 350MHz
Pentium 350MHz
AMD K6-200 MHz
AMD K6-220 MHz
Duo M II 150
Duo M II 220

CD-ROMS

Roxio, PowerSoft,
CyberLink
20X 10X 4X
24X 12X 6X

All items in stock,
check our web site:
www.gatech.com

562-802-3644

Video Cards

Siemens 3Dfx V3D 256
ATI 3D Rage 16MB SGRAM
ATI 3D Rage 32MB SGRAM
ATI 3D Pro 16MB SGRAM
ATI 3D Pro 32MB SGRAM
ATI XpressPro 16MB SGRAM
Mitsubishi M3D 256MB
Mitsubishi M3D 512MB

Motherboards

Intel 486DX PCI Chipset
Pentium 133MHz PCI 32MB Cache
Intel 486DX PCI Chipset
Pentium 133MHz MMX w/32MB Cache
We carry AM386 PCI/ISA
reduced \$100.

Memory 28-Pin DOD

32MB 60ns Cx286
32MB 60ns Cx386
SDRAM

Modems

33.6K int. software
33.6K ext. software

Sound Cards

3Dfx 1600 3D Pro
Creative Labs 16 32
Creative Labs AWE 64

GES TECHNOLOGIES

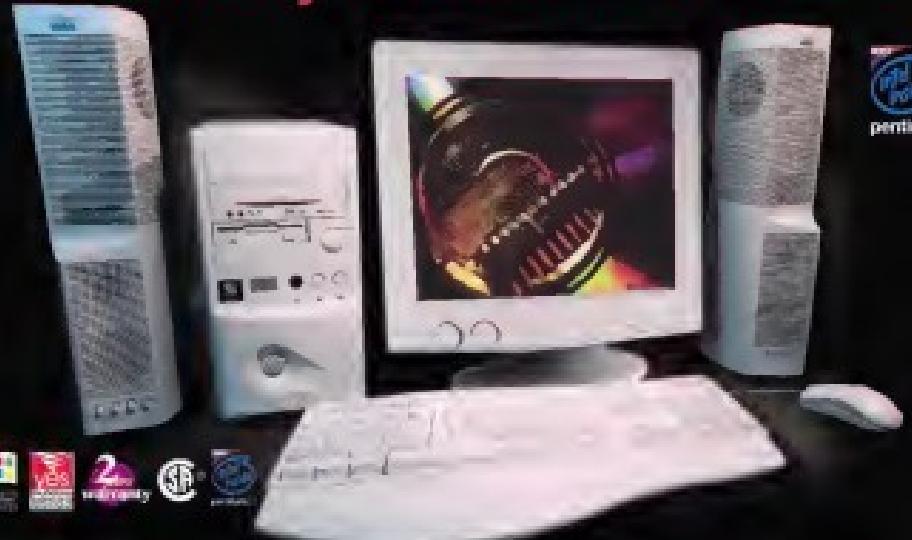
13000 E. Princeton Blvd. #7-2
Santa Fe Springs
CA 90670 USA

562-949-2601 Fax: 562-949-0484

IBM says:

- * Few 2000 testing requires an organization to be able to duplicate 90 to 100 per cent of their critical data.
- * The costs of storage, including storage management, will four to six times the costs of the hardware annually.
- * Storage is a major component of a server, and server buying criteria includes reliability, compatibility, affordability, performance, server and support, availability, portability, manageability and flexibility.

Absolutely No Coincidence!



You may not have expected to find the most advanced computer system and CRT technology on the same page, but you did! There is *absolutely no coincidence!*



Sageye monitors, notebooks, and LCD panels[™] are backed by Sageye's unwavering commitment to manufacturing excellence and innovation[™]. That's why it is no coincidence that Sageye product is selected and distributed by White Knight Distributing nation wide. Sageye's commitment matches well with the philosophy White Knight endorses — Providing leading-edge, quality products with a high level of customer service at affordable prices.

For more information about White Knight systems and components, or about Sageye's line of products, be sure to call one of our toll free numbers, or visit our website at www.whiteknight.com.

Be sure to visit the Sageye booth at the Pacrim Show and look for great specials at White Knight for their leading edge CRT and LCD display technology!

Western Canada:

1-800-561-8575
FAX: 403-243-0002
Toll Free: 1-800-561-8575
Fax: 1-800-561-8575

Calgary Office:

1-800-561-8575
Calgary 403-243-8575
Toll Free: 1-800-561-8575
Fax: 1-800-561-8575

Eastern Canada:

1-800-561-8575
Edmonton 403-243-8575
Toll Free: 1-800-561-8575
Fax: 1-800-561-8575

Halifax Office:

1-800-561-8575
Victoria 604-468-0146
Toll Free: 1-800-561-8575
Fax: 1-800-561-8575



White Knight
DISTRIBUTING

A Div. of Great Pacific Trading Ltd.

Small Storage:

by David Tanaka

Will That Be Spinning Or Solid?



In your six-pound notebook, a 2.5-inch hard drive seems like a light and tidy benefit, but if your entire digital library weighs just a few ounces, you need another solution. This is the idea behind a couple of new storage devices that we'll see within a few months.

One of these is Iomega's Zip drive. Think "honey, I shrunk the Zip drive," and you've got the essence of the Zip. For starters, the cartridge measures 2 1/4 by 1/2 inches, and is less than one-tenth of an inch thick. The 4-gigabyte cartridge will hold 40MB of data.

Iomega expects the Zip cartridge will sell at retail for less than US\$30 per unit. The drive itself — or least in the form Iomega was recently showing — is about the same size as a mini-tape recorder, or slightly plastic. It will likely sell for under US\$320. Zip should be available at retail by mid-1998.

However, the real target for the drives is the OEM market. Iomega hopes to convince manufacturers of cellular phones, personal digital devices and digital cameras, that the Zip is a cost-effective alternative to those still-expensive RAM cards. Compared to \$10 for a 4-MB Zip cartridge, CompactFlash cards are still around US\$100 — and that will buy just the 4MB variety. To my way of thinking, the Zip is a feasible intermediate step for small storage. The drive, embedded into a device like the digital cameras, won't take up much space, will offer 40% of storage per cartridge, and at affordable prices.

I recently had an opportunity to test the Olympus DL500 digital camera. To make sure I had enough storage capacity, Olympus also loaded me three 4-MB memory cards. At the camera's highest resolution, the cards would hold just 10 images each. So, after fitting off the rough equivalent of a roll of 35-mm film, it was stuck. I had to go back to basic base and download the images into my

computer before I could start shooting again. In a real-world scenario, it's just not realistic to expect that consumers would load up with more than a couple of those pricey cards.

However, if a digital camera came with a built-in Zip drive, I could see any consumer buying the cartridges in bulk. At US\$30 each, the disks are about the same price as a roll of film.

Of course, as a mechanical device, the Zip's power consumption will be relatively high, and small as it is, it still requires more physical space on the circuit or PDA than a memory card. That's why the long-term money moves with solid-state storage. And, like everything else in the business, solid-state storage is becoming cheaper with time — and smaller too.

Sandisk Corp. has become one of the leading suppliers of memory cards, and has been signing a pile of OEM deals with digital cameras and other electronic device manufacturers. Along with the memory cards in the standard Type II and Type III PC Card sizes, the company also has its CompactFlash line. These drives are about one-quarter the dimensions of a PC Card. Sandisk estimates that by the year 2000, it will have a CompactFlash device that will hold 500MB.

Audio equipment maker UbiNetic GmbH recently announced a tapeless radio recorder that uses the CompactFlash cards for storage. A 4-MB memory card will store about one hour of voice recording, and the voice file can be downloaded one at a PC. UbiNetic claims a tool when a user would plug into the recorder, download the file onto a computer, and have the file transcribed into ASCII text using voice-recognition software.

Sandisk's latest storage device is the MultiMediaCard, which the company claims is the world's smallest solid-state storage

Iomega Zip



device. The MultiMediaCard is 32 mm by 24 mm by 1.4 mm and weighs less than two grams. Production samples will be available in early 1998 with capacities of two, four, eight and 16MB. Sandisk estimates retail availability sometime in

the second quarter of 1998. A 20-MB version is being developed, and we may see it in 1999.

The application of these memory cards is in the next generation of mobile communications devices, which may have an embedded CPU and an operating system like Windows CE. A database — the telephone directory for example — could be stored on a memory chip. And, as Sandisk points out, in this changing era of smart phones, people will have access to all kinds of data, from news headlines to stock quotations to maps to airline schedules. All of this data could be stored on MultiMediaCard devices. The onboard memory would also add new capabilities to the communicator — perhaps as a voice recorder.

*David Tanaka is a Vancouver-based journalist and Editor of *The Computer Paper*. He can be reached at dtanaka@tp.com.*

INTRODUCING...

ARMOUR PR4000

233 MHz Pentium II Processor w/MMX
32MB SDRAM Memory
1MB Pipeline Burst Cache
1.44MB Floppy Disk
4.3GB Hard Disk
4MB PCI Video Card
24X CD ROM Drive
Sound Blaster AWE 64
56K Creative Voice Fax/Modem
Mini ARMOUR Case
50W Amplified Speakers
104 Key Keyboard
Windows 95 w/Explorer
Microsoft Home Beagle 1998
3 Year Parts/Labour Warranty
Monitor Sold Separately



ARMOUR SERIES



Armour PR4000 Server

Dual 233 MHz Pentium II Processor w/MMX
128MB SDRAM Memory
Dual Integrated UltraWide SCSI Controllers
RAID Controller Expandable
Three 4.3GB UltraWide SCSI 3 Hard Drives
10 Drive Capacity, Hot Swap
4MB AGP Video Card
Intel EtherExpress 100B Lan Card
24X SCSI CD-ROM Drive
Integrated Audio Subsystem
Two Redundant Cooling Fans
Two Redundant Power Supply Fans
Full Tower ARMOUR Server Case
104 Key Keyboard
3 Year Parts/Labour Warranty
Monitor Sold Separately



\$7999.00



Western Canada:

105-1710 James St.
Richmond BC V6V 1R5
Tel: (604) 279-9905
Fax: (604) 279-9902
Tel: 1-800-568-1165

Calgary Office:

4705 14th Street N.E.
Calgary AB T2E 8L7
Tel: (403) 291-1568
Fax: (403) 291-0688
Tel: 1-800-660-3381

Eastern Canada:

2450 11th Street, Unit 2
Richmond Hill ON
Tel: (905) 588-9882
Fax: (905) 588-9880
Tel: 1-800-662-5529

Halifax Office:

Unit 1, 200 Wright Ave.
 Dartmouth NS B3B 1R6
Tel: (902) 468-9200
Fax: (902) 468-9208
Tel: 1-800-733-8250



White Knight
DISTRIBUTING
A Div. of Great Pacific Trading Ltd.

The Super-Suites

Multi-application products provide greater functionality, but more complications, too

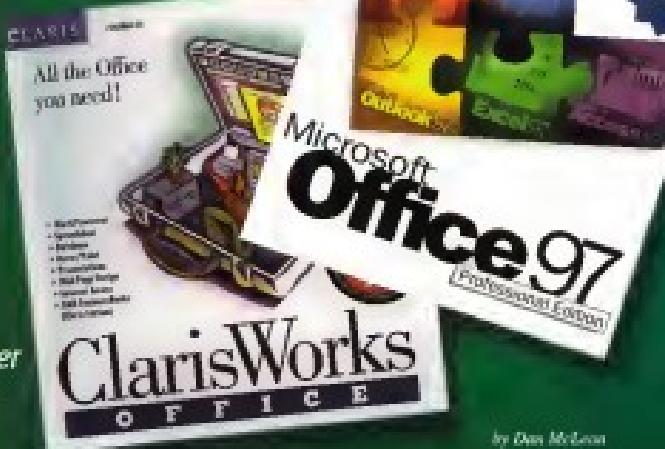
All for one and one for all — probably best characterizes the most significant trend in the development of workplace office productivity software tools these days. Convergence and integration are qualities of the most successful products in this space today — a far cry from the strictly vertical workplace tools of the past.

Traditionally, office productivity applications were designed to support a particular environment. Various designed tools, like workflow or imaging, all effort to offer solutions for niche business types.

But along come concepts like enterprise networking, the Internet, Intranet and virtual companies, which drive demand for more integrated tools and collaboration features. Coupled with these breakthroughs has been a move towards broadening out office productivity software tools to a wider base of users and providing integrated functions that address a continuing demand for automation and data sharing between office productivity applications.

"What we're seeing now is more effectiveness in these product sets," said Marilyn Cox, director of work management services for competitor LORI Group Inc., in Toronto.

"Single vendors now have the entire range of possible tools which you may want to use, all within their own product sets, all of which can plug in and work together or work separately. Rather than having to go to a bunch of different vendors to purchase individual pieces, you can now buy one consolidated suite of products that will do virtually everything you need."



by Dan McLean

Consider some of the most successful office productivity software suites currently on the market. Corel WordPerfect Suite of feature wordprocessors, spreadsheets, personal planners, presentation software and a variety of other collaborative office productivity applications, all in one package. Both of these can be used for both personal and workplace productivity. According to industry analysts, Microsoft Office claims the lion's share of the mass market, and has emerged almost as a "standard" in the corporate world. Corel has come under pressure in the retail space, as the lower priced offering is attractive to home and smaller business buyers.

According to a 1997 report by market research firm Computer Intelligence (http://www.computerintelligence.com), Microsoft's three versions of Office have "an aggregate 91 per cent share of the suites installed base, and over 23 million installed users."

Of note, Computer Intelligence also reported "In Corel, PerfectOffice at last found an owner willing to put some muscle behind it. Corel was able to more than quadruple the number of PerfectOffice users between '95 and '96. Still, it remains a distant competitor, with less than a 10 per cent share of sales users."

The list of vendors who are developing office productivity software suites continues to grow. Companies like Novell Corp. have taken their expertise in building interconnection tools to create a new generation of Web- and Internet-enabled office productivity suites.

"Everybody is sort of coming to the same place from different directions," Cox observed. "One of the more difficult things for people who are making a choice [between various suites] is trying to figure out which way to go. Do you go with a broad new paradigm — an Internet-businesses product — or do you stick with the more established vendor who is interconnection-enabling their product?"

Everyone seems to agree that the single point of success is probably the most significant feature being implemented by office productivity software tool-makers. Users don't want to concern themselves with where information is located or what format it's in — they simply



want to have access to it and be able to work with it.

As a result, Web browser-like front ends that provide a single point of access for anything are being incorporated into many office productivity software tools. But interoperability between suites from different vendors is also a growing concern and it's something that is clearly still evolving. For example, Lotus SmartSuite still can't leverage every feature and function of Microsoft Office 97, and vice-versa. So you buy into a vendor's solution when you purchase office productivity software tools.

"You have to choose a camp and stay in that camp," Carr said. "That's not a problem if everyone in your company is in that same camp."

Intranet layers allow the user to provide a gateway between various products so they can still communicate if you need to, he added. However, there are limits to what can be exchanged. Carr said open document and information containers that provide a neutral format will help address some of these interoperability issues. Using standard communication protocols, like TCP/IP, theoretically can allow any application to access, interpret and use these information containers. "If I can get to you in an unattached-up way, if you can receive and interpret my data, then who cares what other proprietary things there are within the application itself? It's the point of transfer you're worried about."

Thin clients are also changing the office productivity software tool landscape. These devices make it easier to create virtual companies, provide geographically dispersed access and help companies extend business beyond corporate walls, Carr said. From the point of view of system managers and administrators, thin clients also provide a better means of managing and distributing office productivity applications.

As office productivity software tools increase both in popularity and choices, two important challenges must still be addressed. First, the near overwhelming range of tools contained in many office productivity suites is literally too much of a good thing. Carr agreed, most users don't need all that functionality. "Some of the functions are there simply because they are big. There hasn't been a lot of attention paid to what people really need," he said.

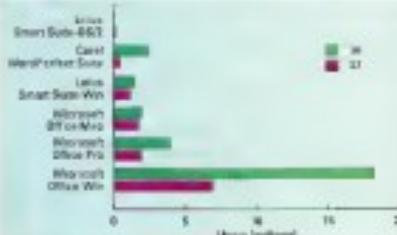
The challenge for many vendors may be in trying to figure out how to provide a generic, all-purpose set of tools that can be all things to all people without making it too difficult to use for people who only want a limited set of features.

Vendors must also build office productivity software tools that work like people do, Carr said, explaining that he still uses a paper day-timer rather than an electronic alternative. "It's (an electronic day-timer) going to have to be easier for me to use than the way I do things now," she said. "I have no desire to invest time in setting up an electronic version which I have on my PC. I have my day-timer with me all the time. I don't have my PC with me all the time."

Knowledge Management — features that provide intuitive and intelligent agent features — built-in office productivity software tools are expected to become an important addition to these applications. For example, consider a customer service representative at a bank who is processing a loan application. Using tools linked to a knowledge repository could provide a clearer profile of that client, based on previous information gathered by other bank representatives. An intelligent agent contained in an office productivity application could gather many types of information on clients and consequently suggest specific questions to ask, based on that person's individual profile. "Knowledge I create as I'm using office productivity tools might somehow get automatically captured, catalogued and stored appropriately," Carr explained. "It means I can be provided with knowledge in context."

So what's available today in the space of office productivity suites? Here's a snapshot of some of the most popular products:

Suite Share



Source: Comptel Information

Microsoft Office 97

Office 97 has been on the market since January. The latest enhancement added to the product are

Internet capabilities—the ability to add hyperlinks into documents and save these as HTML pages. "You can have multiple people working on a particular document at the same time, you don't have to save multiple copies of the document," said Anne McLean, Microsoft Canada's product manager for desktop application products.

An animated character "Office Assistant," with on/off Office 97, pop-up and guides users through various operations. You can query the

Want to
INTERVIEW your
clients?

"net" worth?

Join the Local Area
Network Owners Association (LANDA).
Canada's only association
devoted exclusively to the needs
of the channel community.

LANDA offers:

- **Monthly Dinner Meetings**
- **Group Benefits Plan**
- **Discounts on Training,
Events and Products**
- **Promotional Opportunities
For Your Company**
- **Member Magazines**
- **and much more.**

Membership Pros
Business, Consulting &
Systems Professionals
SMB/MBI Marketing Corp.
Distributors, Resellers
& Business Partners
for reseller brands

(416) 499-0202
(416) 499-0303
(416) 499-0404
(416) 499-0505
www.landa.com

Local Area Network
Associations
COMPAQ Microsoft Novell



COMPAQ Microsoft Novell

Local Area Network
Associations

Office Assistant for help using "natural" language commands rather than searching through a cryptic list of help items. "We're doing a lot of work with things like natural language processing. All of that research that gets done in the background brings out the features that you'll see in Office," McKeon said. "At Microsoft we do an awful lot of usability and real-life testing. We'll bring people of all levels into our usability labs — people that have never touched a computer before, right up to advanced users."

Enhancements to the natural language capabilities of the product will be featured in future releases of Office, McKeon said. Microsoft will look to broaden the toolset and, if research indicates a need or demand for a particular feature then "we would definitely incorporate it into the product," he said.

In terms of Office 97 and regular opportunities, these are limited strictly to sales. Most end-users purchase the product through retail or are sold under licensing programs. For more information, visit <http://www.microsoft.com>.

Lotus eSuite

A lighter-weight and customizable set of productivity applications, eSuite includes a streamlined set of Java-based apps, designed to run on a new generation of thin-client hardware and browser software.

Formerly code-named Kara, eSuite consists of four major components: Workplace, a simplified user interface; nine Java apps including a wordprocessor, spread sheet, electronic mail client, calendar and scheduler; a browser; and, database access tools. The user interface and more apps are expected to be available in January.

According to Marc LeBlanc, product manager for Lotus Canada Ltd., eSuite is not a replacement for the larger SmartSuite office productivity software. The majority of users often only need one or two applications of a total suite package, so eSuite offers a stripped down, easier to use set of tools, he said.

"What's pulling everybody is the network model," LeBlanc said. "We're all going towards it. We're in a connected world now and it's



only going to get more connected. That's a big driving force."

What does that trend demand from office productivity tool vendors? According to LeBlanc, vendors like Lotus must embrace Internet standards and be prepared to build tools that can interoperate with other office productivity applications.

As with most software, the best opportunity for eSuite resellers are found in the areas of customization and implementation. "There is a distribution side, but knowing today what the margins are in software distribution, it's not the big opportunity," LeBlanc said. "The big opportunity is going to be developing your own Java applets to work within the eSuite workspace framework. Even better is [using] the elevate DeskPack to customize and extend eSuite applications."

For more information, visit <http://www.lotus.com>.

Corel WordPerfect Suite 8

This latest edition, released in May, offers 32-bit applications and beefed-up collaborative capabilities. In addition to the WordPerfect wordprocessor, QuattroPro spreadsheet, and Presentations applications, the most major addition in this new package is CorelCentral, what's described as a personal information manager.

CorelCentral combines calendaring, scheduling, to-do lists, an address book, contact log and a card file. WordPerfect Suite 8 boasts tighter integration with Netscape's Communicator.

Other "bonus" applications included in WordPerfect Suite 8 are:

- **Bursts** — a Java tool that allows users to publish pages to the Web without complicated programming.
- **Photo Home 1** — a photo editing, touch up effects and special effects tool.
- **Versions** — archiving software that lets users keep track of document revisions.
- **Desktop Application Director** — gives one-click access from the Windows 95 taskbar to all the core applications and utilities of Corel WordPerfect Suite 8, and,
- **Binary 3D Viewer** — allows users to view any document published to Binary, whether they have the software used to create it or not.

Among the programs offered by Corel in its WordPerfect Suite 8 reseller kit is The White Box Program, which allows eligible VRSs to bundle Corel VARiMOD software with computer hardware, and OEM Direct, for large OEMs who handle at least 500 units of Corel OEM software per month.

For more information, visit <http://www.corel.com>.

Claris ClarisWorks Office

Claris's ClarisWorks Office is described as slim office productivity software designed for small and home offices. It also represents the low-cost end of the office productivity software tool spectrum. Tools provided include a full-featured wordprocessor, spreadsheet, database manager and a basic desktop publisher.

Also included are Web page design tools and Internet access software which allows users to launch into the Internet from ClarisWorks Office itself. There are even development tools for creating a Web site.

The product is sold through a wide reseller network across the United States and Canada. For more information, visit <http://www.claris.com>.

Don McLean is a Toronto-based journalist who specializes in high technology.

**What do
you think?**

E-mail: ccw@tcp.ca

Check out our Web site at:
<http://www.ccwmag.com>

Take our Reader Poll!

Page 62

DFI System Boards for accelerating new multimedia applications

Quality, Award, Performance-Winner Motherboards

400-MHz Pentium II Processor (Coppermine) and AGP 1X technology in the K2X achieved the Best Performance in the CPU and AGP Winbench 97 Performance Test! DFI's TX chipsets based PWD motherboards ranks No.1 in Auto Kit, 200MHz Bench Mark Test!

5.886 ITX D



5.886 ITX D System Board

- 240-pin AGP and PCI Direct
- Hyper RAM support
- Ultra Low Temperature Delta Omega - 0.1 millivolt
- Equipped with a northbridge, southbridge, memory controller and SuperIO
- Supports Modern Video Upkeep On RDRAM to power up the video card
- Power voltage detection and failure alarm
- AGP 1X mode feature

5.886 ITX D



5.886 ITX D System Board

- Supports AGP 1X mode detection
- On-Demand power management
- Ultra low temperature Delta Omega - 0.1 millivolt
- Equipped with a northbridge, southbridge and memory controller
- Supports Modern Video Upkeep On RDRAM to power up the video card
- Monitor protection (temperature, power voltage and processor fan control)

5.886 IPVC



5.886 IPVC System Board

- Dual speed with a 100 MHz core line for high performance switching voltage regulation that supports 2.3V to 3.3V, 0.1V per step
- Two Chained sections using SDRAM
- Supports USB, IDE, and ISA
- Supports LISA, IDE, and ISA
- Low cost, high performance VLSI
- System Board

P2XLX



P2XLX System Board

- Accelerated Graphics Pro (AGP)
- Supports AGP 1X mode
- Ultra low temperature Delta Omega - 0.1 millivolt
- Supports Modern Video Upkeep On RDRAM to power up the video card
- Monitor protection (temperature, power voltage and processor fan control)
- Wake On LAN Ready

Build A Better Future for Your Computer

DFI[®] Components

system board distributor
please call

1-888-294-7130



MOTHERBOARDS

You want to build with a firm foundation. What are your best bets?

By Steve Halenda and Tim Bingham-Wells

Perhaps one of the most critical components of any computer system is the very foundation that houses all its individual components. Indeed, the role of the motherboard is far more important than most customers realize when purchasing a computer system. While it's true that nearly every system vendor will allow the customer to choose the components they wish to put into their systems, the motherboard is quite often the one aspect of the system which hardly gets a mention.

Video cards and hard drives are likely to be specified by the customer, while they often neglect things which could very easily determine their overall system performance such as the brand of motherboard and RAM to go along with it.

Why So Important?

So why is it that most customers don't specify the motherboards in their systems? The motherboard is a low-level component which very few people understand, let alone realize its importance. It is also a key area where customers lack the required knowledge, more so than any other system component. Because of this, it would be ideal if effort was made on the part of the vendors and resellers to try and educate the public on this topic.

It's very possible that one particular piece of hardware inside a computer is incompatible with another. When this happens, technicians are known to spend upwards of several hours trying to isolate the source of the problem even before they could begin coming up with a solution. The sad truth is however, that most of these hardware-related problems can be traced back to the

motherboard itself. Because the motherboard is literally the foundation for all other system components, it is absolutely imperative that the board be designed with great care and impeccable engineering to ensure proper compatibility and overall system stability.

Motherboard-related problems were quite common with 486 and early Pentium machines, and while they haven't completely disappeared, they are not as common today as they once were. But the question remains: are there certain brands of motherboards which are more reliable than others?

The answer is absolutely yes. This is why it's important for system vendors and resellers to make their customers aware of the potential problems associated with buying a cheaper, more generic motherboard. In many cases the customer would only have to spend an additional \$50 or \$75 more to get a grade-A motherboard which could very easily mean never returning to the place of purchase for servicing.

All Motherboards Are Not Created Equal

Although there may be a resemblance to some degree, no two motherboards will ever be identical. They may have similar looks and the same features, but one particular board will always differ from another. It used to be that one brand of motherboard would offer a substantial performance increase over another. Those days could very well be over, as we've seen from our test results this month. The boards we tested were only a small percentage apart from each other in terms of raw performance, and although it may not seem

like much, it could mean everything to a customer who is knowledgeable and looking to squeeze every last drop of performance out of their system. Even though the performance gap has narrowed considerably, the gap between onboard features and overall board quality is still very much evident. One of the great things about technology is that with the passage of time, nearly everything will get miniaturized at some point or another by some degree. This holds very true for the motherboard industry, where we can see motherboards which contain sound systems built into them, as well as onboard video and SCSI controllers.

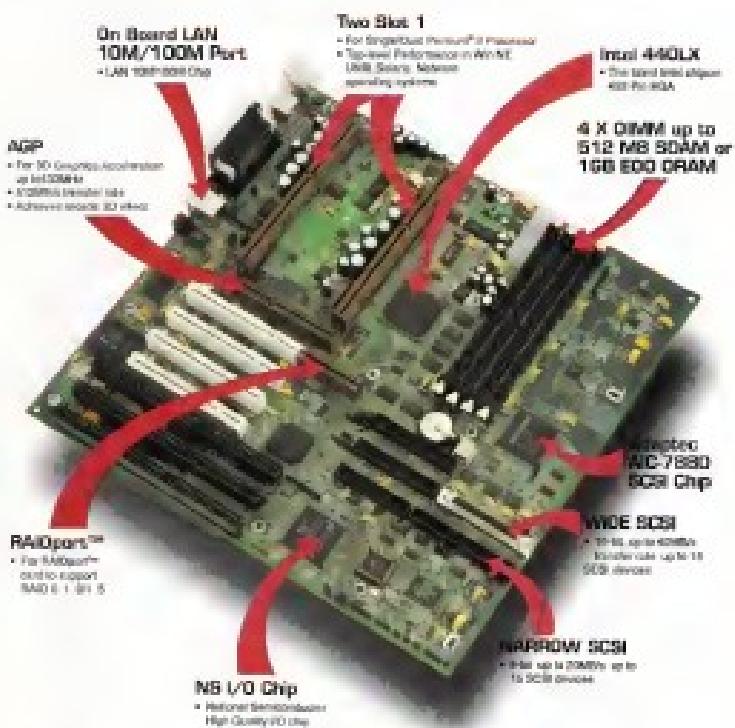
Depending on the exact models of these onboard components, it could very easily save both you and your customers several hundred dollars since these components don't have to be purchased separately. Some of the boards we tested this month included built-in sound and one even had an onboard dual Ultra-SCSI controller. Purchased on its own, that same SCSI controller can easily cost upwards of \$300. The interesting thing, however, is that most of the motherboards we tested with such features cost roughly the same amount. Most power hungry users aren't really interested in onboard video and sound, but give them the chance to have an onboard dual Ultra-SCSI system and they'll be all over it.

When Intel announced the availability of the 440LX chipset, it wasn't long before the first LX boards were on the market. This was a long awaited technology for the new Pentium II processor, which were available for a number of months before the LX

LEGEND • QDI = Non-stop Innovation

Motherboard Manufacturer

P6I440LX/DP Legend IV



Available for Intel 440LX chipset motherboard



Legend I



Legend II



Legend III



Legend V

LEGEND • QDI®
High-End Motherboard Selection

HEADQUARTERS: 200 North Court, Suite 100 • Webster, Texas 77041 • Tel: 281-554-2200 • Fax: 281-554-2201

EUROPE: 2000 Northgate Parkway • Suite 100 • Cypress, TX 77429 • Tel: 281-554-2200 • Fax: 281-554-2201

ASIA: 1945 Riverfront Drive • Suite 100 • Cypress, TX 77429 • Tel: 281-554-2200 • Fax: 281-554-2201



For Memory products please visit our site
<http://www.qdipc.com>



A member of the QDI Group, a division of QDI Inc.
"QDI" is a registered trademark of QDI Inc.

chipset. The 440LX chipset contains two major improvements that were not found on the previous FX design, namely the new AGP slot as well as SDRAM support. As far as performance goes, the LX boards tend to offer anywhere from five to 10 per cent increases over their predecessors. At the time of this writing, the 440LX chipset is already in the works, which will offer, among other things, support for a 100MHz bus, which is currently limited to only 66MHz on the FX and LX boards.

Although the Intel says the LX chipset is designed to operate at 66MHz, several of the boards we tested offer bus speeds of 75MHz, 80MHz and even 100MHz; though don't be surprised if it doesn't quite work as expected. When you get into bus speeds of 100MHz, you're going to have to look at buying some never-faster SDRAM in the order of 7ns or even 5ns. That's not even getting into the extra strain placed upon your existing PCI cards.

It's also interesting to note that nearly all of the boards we tested provide support for both SIMM and DIMM-style RAM. Depending on the system speed, some consumers will appreciate not having to spend money on new SDRAM when they can still use their current EDO modules. Once again, it should be made clear to your customers that when they deal with high system speeds such as those of Pentium II, they will want to have the fastest RAM possible, ideally 7ns SDRAM or even faster for the higher bus speeds, as mentioned above.

A new trend developing lately is to allow the user to check the current status of various aspects of the motherboard. Nearly all of the boards tested list the LM35 chip to measure things such as the current motherboard temperature, CPU temperature, CPU voltages and fan speeds. Some even give the user the option of configuring alarms in case a fan should stop working, or a temperature value gets too high. These values can either be obtained through the CMOS, or with software written specifically for this task, commonly referred to as a LANBoard Manager. This is a great idea that is long overdue, and should make a lot of users very content.

The Tests

We asked vendors to send us their latest motherboards based on the 440LX chipset for Pentium II, and 430TX for the Pentium boards. Some vendors sent us one of each, while others opted to send us just one new Pentium II boards. To ensure the most accurate results, our tests were conducted using one Quantum 3 1GB hard drive, one Maxtor

Millennium II card with 4MB of WRAM onboard, one 64MB DIMM module (10 ns) and a Pentium II 266MHz processor for the LX boards and a Pentium 233MHz processor for the TX boards.

We tested the boards using three different benchmarking software: Sysmark from Norton Utilities 3.0, Ntbench 2.0 and HAPCo Sysmark32 v1.0.

The popular Sysmark program found in the Norton Utilities suite is used to measure the "overall system performance" and is based mainly on the system's cache and memory throughput.

Ntbench performs a number of tests to measure various parts of a system through we focused primarily on its integer tests. The integer performance test uses a heap sort algorithm that constantly re-sorts a series of 1000 random numbers (integers). Because all 1000 integers can fit into the L1 cache of a CPU, it tests the processor speed under the best possible conditions. The result is the number of millions of operations performed in one second.

HAPCo's Sysmark32 also contains a number of tests that measure different aspects of a system. We used the spreadsheet segment of the program, which performs automated calculations on a number of spreadsheets containing several thousand cells. This test is very CPU intensive and low on disk access, making it an ideal test. Two numbers are reported — one that measures the number of seconds it took the computer to run the automated scripts, and the second is a rating based on that number.

In all of the benchmarks, the higher numbers represent better scores, except for the spreadsheet running time test in the Sysmark32 suite, which is measured in seconds. Here, the lower number represents the better score.

It was interesting to note that all of the boards performed quite well, and were within a few percentage points of each other. Overall, the fastest Pentium II boards were the ASUS PZL97-DS followed by the Aopen AXBL. The fastest Pentium board was the QDI Thumper III, followed closely by the ASUS TX97.

Acknowledgements

We wish to thank QDI for supplying us with the CPU and RAM samples required for this month's motherboard tests.

We also want to thank STS Systems for supplying us with the Intel LX motherboard. Although the board was in its original seal, we were unable to power it up and therefore unable to obtain any benchmarks from it.

Editors' Choice

Performance — Pentium II

ASUS PZL97-DS

Aopen AXBL



Jan 98

Both of these boards offer excellent performance, support hardware monitoring, and have excellent manuals. The ASUS PZL97-DS is a dual CPU board that offers bus speeds of up to 100MHz and has an onboard Adaptec AIC-7840P Ultra Wide controller, as well as Wake-On-LAN support.

The Aopen AXBL offers bus speeds up to 87MHz and offers one additional ISA slot when compared to the ASL95 board.

Performance — Pentium II

EVN Doubles II

ASUS TX97



Jan 98

The QDI Thumper III managed to outrace its competition, although the ASL95 was a very close second. The QDI board offers several unique features, such as hardware monitoring, a bus speed of 75MHz, and both AT and AIX power connectors.

The ASUS TX97 does not offer bus speeds beyond 66MHz, although it does support hardware monitoring and has an excellent user manual.

Overall Features

QDI Legend IV

Tyan Thunder 2



Jan 98

The boards with the most unique features are the QDI Legend IV and the Tyan Thunder 2.

The QDI Legend IV features an onboard RAID port, and onboard 100base-T port for instant high-speed networking. Combine this with its Spreadload feature which allows you to set the system speed through the BIOS, and you've got yourself a clear winner.

Tyan's latest offering is the Thunder 2. It offers an onboard dual Ultra-SCSI controller — every system editor's dream, as well as an onboard Giga-Yukon sound system and Wake On-LAN support.

Steve McHugh and Tim Roongham-Hicks are Canadian Computer Wholesaler's Lab Test Editors. They can be reached at (416) 335-8494.

No Speed Limit



6MLX

Intel 440LX Pentium® II Multimedia Mainboard

- Intel 440LX AGPNet • Support AGP
- Auto Jumper Yes • Creative
EMU808 3D PCI Sound Chip on
board • Support UltraDMA-33 • ATX
- Double Display • SoftPower on/off
and monitor ring wake-up • CPU auto
fan off and temperature monitoring

ZIDA
Zida Technologies Ltd.
www.zida.com

 **Comtronic**

[<http://www.comtronic.ca>]

83 Commerce Valley Drws East, Thornhill, Ontario, L3T 7J3 • Tel: 905-881-3406 • Fax: 905-881-4883

Toronto
905-881-3466

Vancouver
604-273-7180

Halifax
902-461-8777

Hamilton
905-574-3744

Montreal
514-731-1323

Ottawa
613-736-7513

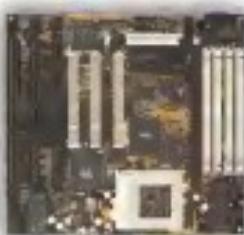
Motherboards Pentium Boards

	Asper APST	ASUS TX91	SFI 586ITBD	Epxx F55-BT
Chipset	486DX	486SX	486SX	486DX
ISA slots	4xPCI	4xPCI	2xPCI	4xPCI
SBMII sockets	2x	2	2	2
SRAM sockets	1x	1	1	1
Minimum RAM supported	512KB	256MB	256MB	256MB
Bus speeds supported (MHz)	33, 40, 50, 60	33, 40, 50, 60	33, 40, 50	33, 40, 50
PCI slots	4x	4	4	4
ISA slots	1x	1	1	1
Power supply connector	ATX	ATX	ATX, AT	ATX, AT
Manual update	Yes	No	Very good	Very good
Supports hardware monitoring	Yes	No	No	No
Additional features				Keyboard power on
 Native Systems 3.14				
Memory	512MB	512MB	512MB	512MB
Integer speed (MHz/pin)	100MHz	100MHz	100MHz	100MHz
 RAID Controller:				
RAID time (seconds)	35-47	35-36	35-32	35-39
RAID rating	300 MB	300 MB	300 MB	300 MB
 Contact:				
Manufacturer's Web Site	1-800-369-8728 www.asper.com	1-800-269-0451 www.asus.com	1-800-261-1133 www.sfi.com	1-800-555-1511 www.epxx.com
Local Web Site				
Suggested Retail Price	\$199	\$199	\$199	\$199
Street Price	\$199	\$199	\$199	\$199
Reseller Price	\$199	\$199	\$199	\$199
	ODI Titanium 1B	SOYO SY-SX85	Supernova PSMM4A88	Tyan T1573B
Chipset	486DX	486DX	486DX	486DX
ISA slots	4xPCI	4xPCI	4xPCI	4xPCI
SBMII sockets	2	2	2	2
SRAM sockets	1	1	1	1
Minimum RAM supported	512KB	256MB	256MB	256MB
Bus speeds supported (MHz)	33, 40, 50, 60, 75	33, 40, 50, 60, 75	33, 40, 50, 60, 75	33, 40, 50, 60, 75
PCI slots	4	5	5	5
ISA slots	1	4	4	3
Power supply connector	ATX, AT	ATX, AT	ATX	ATX
Manual update	Very good	Very good	Very good	Excellent
Supports hardware monitoring	Yes	Yes	Yes	Yes
Additional features				
 Native Systems 3.14				
Memory	64MB	64MB	512MB	128MB
Integer speed (MHz/pin)	100MHz	100MHz	100MHz	100MHz
 RAID Controller:				
RAID time (seconds)	35-45	35-32	35-30	35-35
RAID rating	300 MB	300 MB	300 MB	300 MB
 Contact:				
Manufacturer's Web Site	1-800-369-1792 www.odicorp.com	1-800-555-0500 www.supernova.com	1-800-321-1222 www.tyan.com	1-800-555-1511 www.epxx.com
Local Web Site				
Suggested Retail Price	\$199	\$199	\$199	\$199
Street Price	\$199	\$199	\$199	\$199
Reseller Price	\$199	\$199	\$199	\$199

Note: Pricing and warranty information will vary by region and distributor.



fast performance •



5SVA

VIA Apollo VPX MMX
Pentium® Mainboard

* High performance VIA Apollo VPX
PCI chipset * On board 256/512K
pipelined burst cache * On board
switching regulator for high power
CPU * Support UltraDMA-33 * Tomato
Media Interface for Creative * Slim
Baby AT Form Factor



ZIDA
Zida Technologies Ltd.
www.zida.ca

Comtronic
<http://www.comtronic.ca>

83 Commerce Valley Drive East, Thornhill, Ontario, L3T 7T3 • Tel 905-881-3666 • Fax 905-881-6893

Toronto	Vancouver	Halifax	Hamilton	Montreal	Ottawa
905-881-3606	604-273-7200	902-463-5777	905-674-3244	514-731-1223	613-736-7513

Motherboards Pentium II Boards



	ABIT AB-LX5	Ampeo AXSL	ASUS P2LB7-DS	SFI P20LX	Epos KPS-LA
Processor	Pentium II	Intel X	486DX	486SX	486SX
BIGS	None	None	None	None	None
Dual Processor support	Yes	Yes	Yes	Yes	Yes
DIMM sockets	2	2	2	2	2
SIMM sockets	None	None	None	None	None
Maxmain RAM supported	128MB	128MB	512MB	128MB	128MB
Bus speeds supported (MHz)	48, 66, 75, 100	33, 66, 100	33, 66, 100, 133	33, 66, 100	33
PCI slots	4	4	4	4	4
ISA slots	3	3	3	3	3
Power supply connector	ATX	ATX	ATX	ATX	ATX
Onboard SCSI controller	None	None	None	None	None
Support dual DOS	NA	NA	NA	NA	NA
Memory parity	Supported	Supported	Supported	NA	Very good
Supports hardware monitoring	Yes	Yes	Yes	Yes	Yes
Additional features			Write an LAN		
Processor Speed (MHz)	133.20	133.40	133.50	133.20	133.57
Memory					
Integer speed (MDPS/sec)	198.40	198.00	200.00	198.40	194.10
BIOS Spreadsheet					
Runtime (seconds)	21.10	21.10	19.11	29.20	26.41
Rating	38.00	39.00	41.90	37.00	39.50
Contact:					
Manufacturer's Web Site	http://abit.com.tw	http://ampeo.com.tw	http://www.asus.com.tw	http://www.sfi.com.tw	http://www.epos.com
Local Web Site	www.ampeo.com.tw	www.ampeo.com.tw	www.asus.com.tw	www.sfi.com.tw	www.epos.com
Suggested Retail Price					
Street Price					
Reseller Price			US\$429		

Note: Pricing and inventory information will vary by region and distributor.



Jan. 26

Digitrax	Intel	Lucky Star	MSI	ODD	Shuttle	Sys
67-058LX	744-058LX	MX-1.0X	480LX	Legrand IV	HOT-628	SY-6KB
480LX	480LX	480LX	480LX	480LX	480LX	480LX
Award	NA	Award	AMI	Award	Award	Award
No	No	No	No	Yes	No	No
4	3	3	2	4	4	No
None	None	None	None	None	None	4
512MB	384MB	128	320	128	512MB	None
66	66, 66	66	66	66	66, 75, 83	512MB
4	4	4	4	4	4	66
3	2	3	3	3	3	3
ATX	ATX	ATX	ATX	ATX	ATX	3
None	None	None	None	ATX-1000P	None	ATX
NA	NA	NA	NA	NA	NA	None
NA	Fast	Good	Very good	Very good	NA	NA
Yes	NA	Yes	Yes	Yes	No	Very good
				Goldcard 1000BaseT		
				Real port		Works on LAN
129.99		138.80	132.57	138.90	131.31	132.99
155.23		159.23	155.87	159.36	157.90	158.50
77.16		76.95	76.40	77.65	79.10	77.26
311.58		312.50	314.50	312.66	327.00	310.50
1885-477-0088	1-888-383-2433	12090-940-2600	12090-940-3127	12090-945-1450	1111-200-1221	
www.giga-byte.com	www.msi.com	www.dynex.net	www.edigrp.com	www.specialeffix.com	www.tosyo.com	
3295				www.giga-byte		
3295						
3195						

Motherboards Pentium II Boards



	Supermicro P60LS	Mycamp TMC T10NL	Tancom EM1X	Type Thunder 2	Jan. '99	Universal Scientific PRO-323
Chips:						
SiS333	SiS333	SiS333	SiS333	SiS333	SiS333	SiS333
SiS333	SiS333	SiS333	SiS333	SiS333	SiS333	SiS333
Disk Predictor support	No	No	No	No	No	No
DVIW cards						
SIMM sockets	4	4	4	4	4	3
Modem RAM supported	None	None	None	None	None	None
Bus speeds supported (MHz)	112MHz	100MHz	100MHz	100MHz	100MHz	100MHz
PCI slots	6	6	6	6	6	6
ISA slots	4	3	4	3	4	3
Power supply connector	ATX	ATX	ATX	ATX	ATX, AT	ATX, AT
Onboard SCSI controller	None	None	None	None	None	None
Support dual SCSI	No	No	No	No	No	No
Manual control	Excellent	Very good	Bad	Excellent	Good	Good
Support hardware monitoring	Yes	Yes	No	No	No	No
Additional features						
Network Systems 3.6	129.00	139.00	129.00	129.12	133.10	133.10
Watches						
Integer speed (MHz/bytes)	150.00	150.10	150.00	150.10	150.10	150.10
SAPCo Speedcheck						
Run time (seconds)	0.35	0.40	0.35	0.35	0.32	0.32
Relay	0.02.00	0.02.00	0.02.00	0.02.00	0.02.00	0.02.00
Contact:						
Manufacturer's Web Site	www.supermicro.com	www.mycamp.com	www.tancom.com	www.thunder2.com	www.usci.com	www.mp.com
Local Web Site						
Suggested Retail Price	\$399	\$399	\$399	\$399	\$399	\$399
Street Price	\$399	\$399	\$399	\$399	\$399	\$399
Reseller Price	\$399	\$399	\$399	\$399	\$399	\$399
Note: Pricing and warranty information will vary by region and distributor.						

THE CUTTING EDGE TECHNOLOGY

- The Most Up-to-date Features
- Easy Assembly & Maintenance
- Excellent Ventilation
- Folded Metal Edge
- FCC class B & CE Requirement

Barroway Welcome

THE TOTAL SOLUTION FOR SERVER CASES



BLACKO ATX



A5731

A6771

A6811

HIGH QUALITY & COST-EFFECTIVE

NET PC CASE



88911



CHENBRO MICOM CO., LTD.

9F, No. 11, Alley 11, Lane 327, Sec. 2, Cheng Shan Rd., Chang Ho City, Taipei Hsien, Taiwan R.O.C.
Tel: 886-2-2489325
Fax: 886-2-2489306

CHENBRO AMERICA INC.

37900 Central Corridor, Newark, CA 94560, U.S.A.
Tel: (510) 5899795 Fax: (510) 5899796
Web Site: www.chenbro.com.tw
Email: chenbro@niscicom.com



by Newbytes

Acer forms joint venture with Upsilon International



Jim Lin

Fulfilling the promise it made at the start of 1997, Acer Computer International (ACI) has formalized a joint venture with Upsilon International Corp. — forming Acer Computer Philippines Inc. (ACPIL).

The joint venture, of which 40 per cent is owned by ACI and 60 per cent is owned by Upsilon, embodies Acer's "Global Brand, Local Touch" corporate philosophy, says Sun Shih, chairman and CEO of The Acer Group, in a press briefing conducted in Manila.

The amount invested by Acer was not disclosed. However, Shih said it is quite small compared to the US\$500 million it is pouring into its Subic Bay manufacturing facility.

ACI, based and publicly listed in Singapore, is the marketing arm of The Acer Group, which is headquartered in Taipei, Taiwan. Acer has grown into a global company with revenues of US\$5.9 billion in 1996, 20 years after its founding by Shih. Upsilon, on the other hand, has been the exclusive distributor of Acer computers in the Philippines since 1992 and has been cited for its role in making Acer the top PC brand in the Philippine market as attested by International Data Corp. reports in 1994, 1995 and 1996.

Ronald Lee, president of Upsilon International today assumes the post as chairman and CEO of Acer Computer Philippines, Inc., while Upsilon's former executive vice-president, Michael Wong, is president

Hitachi Ltd. announces NetPC-based computer

Hitachi Ltd. has announced two new network computers based on Microsoft's NetPC system. The machines, which will be sold with supporting server software, are based on two of Hitachi's space-saving personal computers.

The Flora 310 NetPC features a 133MHz Pentium processor with 32MB of memory and a built-in 12.1-inch Bio-Addressing 819K LCD panel. The Flora 350 NetPC is similar to the previous model but comes with no display. Both machines are equipped with a floppy disk drive and come with Microsoft's Windows 95 and Client Management Kit 1.5.

Hitachi said a feature of the network computers is the ability to configure new machines within five minutes. It said that by reducing this time, from an average 30 minutes for personal computers, the total cost of ownership was less than PCs.

But while Hitachi may have reduced the total cost of ownership, the cost of purchase remains almost equal to a personal computer.

Hitachi has no current plans to sell the machines outside of Japan.

Save up to

50%

LOGIC BOX
DISTRIBUTOR

RETAILERS OF
MANUFACTURERS

OVER 1000+ OEM PRODUCTS,
ONE YEAR WARRANTY ON ALL
ITEMS UNLESS INDICATED.
WE MAY OVERSTOCK A SURPLUS.

FOR YOUR WEEKLY COPY OF OUR
RESELLER HOTLINE! REGISTER
ONLINE

<http://www.logichox.com>

FAX
1995 405-1759

TELEPHONE
1 800 746-8312

TELEPHONE
(905) 405-1541

Dept. Lhotse@logichox.com

%

Thailand opens intellectual property court

Thailand's Intellectual Property and International Trade Court is now officially in operation. It had been four-and-a-half years since the Justice Ministry proposed the establishment of the court to the cabinet on March 22, 1993, approved in principle May 4, 1993.

As a "special court," differing from civil or criminal cases, the IP and International Trade Law has been set up under the Intellectual Property and International Trade Law to judge all cases involved with IP and international trade issues.

Consideration of the cases will be undertaken by the judges appointed by the judicial officer, as well as co-judges, who are IP and international trade experts, selected by the Judicial Committee, holding their positions for three years.

The Court has the power to judge both civil and criminal cases involving intellectual property and international trade.

Malaysia getting tough on software piracy

The Malaysian government is taking an increasingly proactive stand in driving home the message that no company is safe from the long arm of the law if they continue to flout copyright laws, and Business Software Alliance.

Zetris Computer Sdn Bhd, one of the largest sellers of software and computer products in Penang, recently was fined after pleading guilty to infringing the copyright software in several software programs, including AutoCAD Release 12, Lotus 1-2-3 and Microsoft Windows Version 3.1.

In a separate incident, the Enforcement Division of the Ministry of Trade and Consumer Affairs recently raided the premises of J. E. Consultants Sdn Bhd in Kuala Lumpur, the first such action taken against a mechanical and electrical engineering firm for suspected use of illegal software in that country. ■

SDMS

THE
POINT OF SALE HARDWARE
SPECIALISTS FOR TODAY'S
BUSINESS NEEDS

Visit Us At COMDEX PacRim '98, Booth #2004

Epson. The #1 Choice In PC-POS Printers.



Right Down The Line.

No matter what your PC-POS system requirements are, Epson has a printer that will meet your needs. With their advanced features, and the quality and reliability Epson is famous for, Epson's PC-POS printers are right for even the most sophisticated POS systems. And with Epson's open architecture products, your

customers will realize significant savings now, and in the future when they need to add new functions.

So make the right choice for your PC-POS system and make sure it includes Epson printers and peripherals. To find out more about Epson's complete product line, call 1(800) 499-9995.

EPSON

TECHNOLOGY YOU CAN TRUST.

THE CHOICE IS YOURS . . . CONTACT YOUR NEAREST SDMS REPRESENTATIVE TODAY!

SDMS
POINT OF SALE HARDWARE SPECIALISTS

TO RECEIVE
OUR LATEST
CATALOG
CALL US
TOLL FREE

SDMS (BC)
PH (604) 270-0287
FAX (604) 270-4550
Email: sdms@telus.ca

SDMS (ON)
PH (905) 664-6817
FAX (905) 664-5629
Email: sdms@rogers.com

SDMS (PE)
PH (314) 543-8888
FAX (314) 543-8431
Email: sdms@telus.ca

VISIT US ON THE WEB — <http://www.sdms.ca>

1-800-677-SDMS

The Oldest Secret: Service

More competitive than ever, the computing market requires that resellers excel in their relationships with customers

by Jeff Evans



I get letters. Particularly painful are plaintive letters from very unhappy first-PC end-users, describing PCs that are 'dead in the box,' endless waits for tech support, slow or no warranty fulfillment, and serious wastes of time from anti-service-oriented vendors as well as from no-longer-serving PCs.

To be fair, some of these problems stem from the very nature of PC technology, which has often been fragile, complicated, used at home and amateur, and sometimes just buggy or unreliable. As well, many end-users are poorly trained, and contribute to their own problems.

Nothing can excuse poor service, however. As the '90s roll to a close, a lot of PC resellers are finding the going of an increasingly mature, competitive market. Margins are often paper-thin. What used to be premium products are now commodities.

How can a reseller keep existing customers, and attract new ones? Increase war-
not-share? Maintain margins? Upsell customers on extra features and options, and continue to sell to the customer throughout the life of the system sold? Increasingly the answer to all these questions comes back to a very old concept: know your customers, and love them at death. The competitive nature of business today doesn't mean that there is no margin to provide good service — rather, understanding and meeting the needs of customers is increasingly important to succeed in the information technology marketplace.

The Business Case For Quality

There will always be a segment of the market that is environmentally price-sensitive, where the no-frills, buy-buy product will be able to find buyers. Especially in the more market-ripened chains the pressure on price is terribly fierce, and this tends to spread even to more upscale VARs and systems integrators.

However the more a customer needs a reliable information system for their business, the more foolish it is to buy strictly on price. The best customers are those who have a professional, businesslike approach to buying computing products and services. They are realistic enough, and experienced enough to know that hardware price is only a tiny part of the total cost of ownership of a computing system. They know that their business can be immobilized when their mission-critical computer system is down, and they are sensible enough to prefer reliability and service, even at a somewhat higher price.

"How can a small to medium-sized reseller afford a customer management system? The solution is not to simply spend, but to spend wisely."

In a recent book, "Real-Time Preparing for the Age of the Next-Generation Customer," by consultant Rajesh McKenna (McGraw-Hill Ryerson, ISBN 0-87854-794-3, \$29.95), the author claims that "In the information age, all businesses will become service businesses." McKenna points to the successes, and more interestingly the mistakes, of companies such as Intel, Wal-Mart, and Apple, and concludes that the 'Real-Time'

business world of the computer age requires "constant, instantaneous communication with and responsiveness to customers." This kind of real-time service can only be provided by organizations that have been deliberately created to sense, respond, and change to meet customer needs.

According to McKenna, computer technology has become embedded in every aspect of business, and to succeed, vendors must use technology to conduct a continuous dialogue with customers. Methods of doing so include traditional marketing, advertising and merchandising techniques, but increasingly involve using the Web, intranets, customer databases, and techniques such as data mining. Once the province of only the largest firms, these techniques are now available to almost any size of business at the cost and complexity of the technology decreases. New forms of maintaining contact with customers are offered by future developments such as

interactive TV and videoconferencing, according to McKenna. McKenna offers an optimistic view of the business potential of resellers creatively employing the same computer technologies that you sell. In the future, successful companies will employ technologies that let customers serve themselves much of the time, and which will allow the company to have a virtual 'presence' at their customers' locations all the time. McKenna is

not just presenting a private option. Firms such as FedEx attribute their success directly to its 'People-First Philosophy,' which includes both employee and customer satisfaction.

The Harvard Business School Press published a recent book, "Net Gain: Expanding Markets Through Virtual Communities," which echoes many of McKenna's concepts. Net gain assumes that consumers are getting more savvy about buying on-line, and are becoming ever more demanding of quality and service.

For larger firms such as Canadian manufacturer BlackBerry, Windows NT has already offered a cost effective platform for vital customer management software. BlackBerry has chosen Data Software Corp.'s Customer Centre program (<http://www.dscc.com>), which runs with Microsoft's BackOffice, as a complete solution to promote effective marketing, sales and customer service. Day-to-day, its Windows NT program is being designed for "world-class, customer-focused companies" desiring to "improve existing effectiveness, shorten sales cycles, improve customer service and exceed customers' expectations by providing marketing, sales, service, and support teams with a single, comprehensive tool for managing, sharing, and viewing all customer information." Customer management software is typically designed to allow servers or mainframe databases to connect with the Internet, mobile computers and even new mobile "smart" phones and hand held PCs and electronic organizers.

Bang For The Buck

But, how can a small to medium-sized reseller afford a customer management system? The solution is not to simply spend, but to spend wisely. According to a study by Deloitte and Touche (<http://www.deloitte.ca>), firms lacking in an understanding of how to use technology appropriately can spend up to 10 times more than firms that buy smart. The bottom line is that, to be successful, no vendor will be able to afford the option of either not spending on customer management, or spending on the wrong system.

Systems to succeed? They are remarkably common, yet:

- Keep it simple: they leave more power customer management tools.
- Buy off the shelf, rather than custom made.
- Spend money on training, not dossier recovery and know-how.
- Don't automatically outsource: it's often more expensive than learning to do a core business task in house, particularly when it

involves direct contact with customers.

- Finally, employing customer management technology is not a band-aid that can be pasted onto a fundamentally non-service oriented operation. In order to integrate customer contact, website and on-line salesforce automation and service and support, the entire organization must be brought into the new age.

Where To Get Necessary Customer Information

There are a variety of new products that offer sources of information on actual and potential customers. One of the major advantages of big companies with large IT departments is that they are leveraging their networked server and mainframe technology, which was once mainly used for finance, billing and inventory tasks, to accumulate information on their customers, through

data warehouses, data ware and data mining systems. This mass of customer data is used with increasing effectiveness for 'loyalty management,' focused marketing, advertising, direct sales, warranty fulfillment and technical support.

Decisive Technology (<http://www.decisivetechnology.com>, or 1-800-937-9999) offers a free trial copy of its Decisive Survey program to help with gathering and analyzing customer information.

Environmental Systems Research Institute (ESRI, <http://www.esri.com>, (909) 580-3691) has recently announced an ArcView Business Analyst, a software system for targeting markets, site prospecting, customer profiling, sales analysis and region generation.

Jeff Evans is Associate Editor of Canadian Computer Wholesaler. He can be reached at jeff@compcan.ca.

Accessories

We provide an On Stop Shopping Center for your Computer Accessories

C a b l e s

Perfected
your
computer
business
with quality
& durable
accessories.

We have:

- Backup Tapes
- Super Disk 120Mb
- Zip Disk 100Mb
- Cables
- Mouse
- Mouse Pad
- Power Bar
- CPU Fan
- SCSI connectors
- Flat cables
- Audio Speaker

Or just come in!

R C P

1-800 567-7227

Dealer Only

#126-13751 Mayfield Plaza, Richmond, B.C. Canada V6V 2G6
Ph: (604)278-2111 Fax: (604)278-1211 toll free: 1-800 567-7227

Building Customer Relationships

A romance is more than sweet talk. Remember the key principles of making and keeping good working relationships as you interact with your potential clients.

By Monta Kerr



What you are about to read should not come as a great shock. If you're still in business, you probably recognize this truth of all truths: the customer is at the core of all marketing programs. But some people do get too caught up in the process of marketing and forget the ultimate goal. The fact is, you can send out dozens of brochures, or create the best-looking point-of-sale materials — or advertise as much as you want, but if it's not all focused on the customer, it won't do any good. Your success or failure all comes down to that fundamental relationship.

It's not as simple as it sounds. Think of a customer relationship as a marriage. It begins with a courtship as you try to find out if you belong together. Just by the way, discover what you can offer each other, and then decide if you should make a commitment. Long before the vows are made, there is a series of steps that lead to the altar — or to the closing of the deal.

There are three main stages you have to go through to forge a strong relationship:

- Meeting the potential mate. As the old saying goes, you never get a second chance to make a first impression. Impressions formed in the early stages of the relationship are difficult to change. So begin by making sure you know what you want the customer to think of you — develop a set of goals and a marketing plan. Make sure all the marketing materials you develop are geared toward achieving that

goal. Be consistent in your messaging — you don't want your intended to think you're fickle. Most of this work must be done before you even meet your customer. Planning and preparation will make you ready for the day when the customer walks through your doors, or makes that phone call to your number. The plan, followed up with high-quality materials, will give you what you need to attract your customer in the first place.

- Getting asked to the dance. Most likely you won't be the only suitor the customer is considering. It's a competitive world out there, and even after you have attracted the attention of a potential customer, there's no guarantee that

you are going to make a sale.

At this point, you have to prove that you have what it takes to go the distance. Here's where you let the customer look beyond the facade and see what you really have to offer. Do their needs match what you're selling? Can you tailor your solution to meet the requirements? One of the primary elements that causes me to play here is your ability to listen. It's important to really hear what the customer is telling you. Be prepared to be flexible and willing to try something new — sometimes the solution isn't obvious. That's why you're in business. Find an answer that will work for both of you. One other thing to keep in mind: "sell" yourself and make commitments — but never, ever make a promise unless you know you can keep it. You don't want to get a bad reputation, after all.

- Keep the romance alive. Congratulations! You and your customer have signed on the dotted line — you've made the sale and the agreement has been sealed. Don't let it end there. You can't stop visiting your customer, any more than you can stop snuggling your spouse after the wedding. If you want to maintain a relationship — and, after all, a repeat customer is the best kind — you have to work at it. First of all, do what you said you'd do — never, ever single one of the items of your deal. Then when the project is finished, keep track of your customer.

Say in touch. Send out regular batches of special promotions. Let your customer know when the software you installed is being upgraded by the vendor. Send a greeting card during the holiday season, just to say thank you. Find your own personal ways of keeping the customer happy, and remind him or her of the exceptional services you offer.

Like a romance, building customer relationships takes time and effort. But it is one of the most important things you can do. So make sure your upfront information is interesting and focused, answer all the questions the customer asks and provide the best possible product.

And finally, light a few candles and pour some wine every now and then (metaphorically speaking, of course), to keep the magic alive... *JK*

**"Like a romance,
building customer relationships
takes time and effort."**

Monta Kerr is a senior consultant with High Road Communications, a public relations agency for high-tech companies. She is based in High Road's Toronto office and can be reached at kerr@highrd.com.

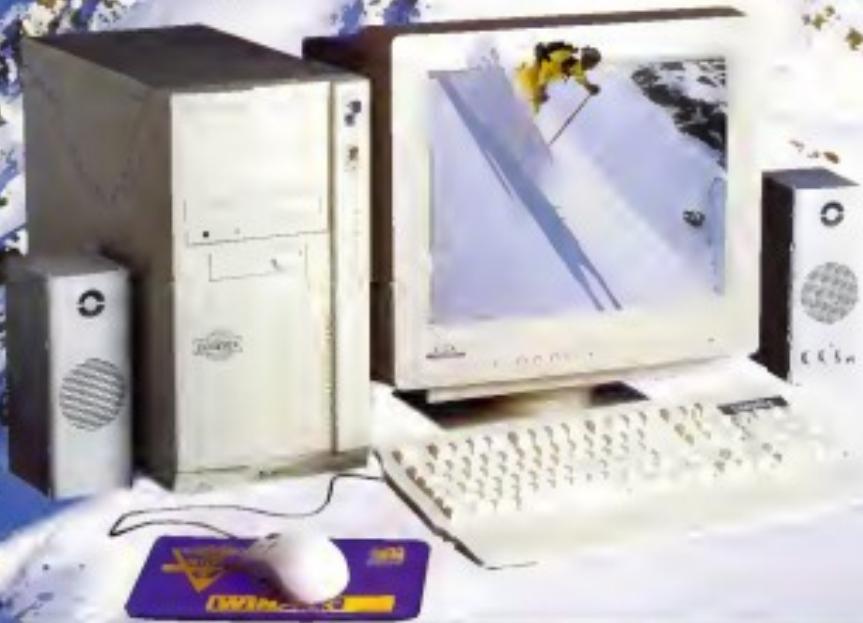




PEAK PERFORMERS FOR THE NEW MILLENIUM

CTX

MARINE TECHNOLOGY IMPORTERS



CHECK OUR WEB PAGE AT: [HTTP://WWW.COMTEXMICRO.COM](http://www.comtexmicro.com)



COMTEX MICRO SYSTEM INC.

Head Office: #100-13751 Mayfield Place, Richmond, British Columbia, Canada V6V 2D9
Branch Office: #7-3610 29th Street N.E., Calgary, Alberta, Canada T1Y 5Z7

Web Site: <http://www.comtexmicro.com>

Email Address: csm@vancouver.com

Tel: (604) 273-8888 Fax: (604) 278-2818

Tel: (403) 250-3386 Fax: (403) 259-5992

Call your Comtex Sales representative today.

At request Results on the Web site or order regular basis.
For last minute requests a minimum of 24 hours notice.

PC98 — Where Are We Going?

by Alan Zisman



Once, IBM innovated, and everyone else copied.

But those times are long gone. Now, in the show that's the computing industry, everybody's got a plan, but nobody knows where we're all going. There seems to be a lack of what IBM chairman and CEO Lou Gerstner referred to as "that vision thing."

While no longer simply "IBM-clones," the vast majority of computers sold today run one or another version of Microsoft Windows on some kind of Intel (or clone) CPU. As a result, Microsoft and Intel, who together are sometimes referred to by industry pundits as "WinTel" have provided the clearest sign to a platform as we're going to find. So it should not be much of a surprise that they've stepped into the power vacuum to try and provide a vision.

For the past couple of years, they've published specifications detailing what you expect of the next year's PCs. Together last October, the two companies collaborated on a set of PC Design Guidelines, with an aim to help the industry "move in sync." In Intel's director of platform marketing, Don Russell put it, in a recent *InfoWorld* article:

While Intel does not issue logos to manufacturers who meet the specifications (and Russell stated that there are "No Intel police"), Microsoft continues to have a logo program for hardware and software designed to work with Windows. This will be used to help move product development in the direction set out in the PC98 guidelines.

A PC98 machine (which for the first time includes notebooks as well as desktops) will feature at least:

- a 200MHz MMX Pentium or compatible processor (desktops), 166MHz (notebooks),
- 32MB of RAM (desktops), 24 mega (notebooks),
- 256KB of cache RAM,
- Universal Serial Bus (USB), IEEE 1394 (Firewire), or PC-Card ports, with hot-swapping capabilities. Notebooks require USB, 32-bit CardBus, and Infrared ports, with IEEE 1394 on a docking station;

- USB and IEEE 1394 device bays, and,
- Year 2000 and beyond BIOS-level support.

Notebooks will need to support Advanced Configuration Power Interface (ACPI) for power management that can be better controlled by future operating systems — specifically Windows 98 and NT 5.0. Current Advanced Power Management (APM) needs to be set at the system BIOS level, permitting only manual configuration by the operating system.

The specifications recommend changes to speed up boot time, for example, an end to the power-on video memory test, and a minimized memory test, meant just to establish the size of the system memory. Tests of parallel and serial ports, and floppy and hard drive tests at boot-up would also be eliminated, as part of a move towards eventually making PCs instant-on like a TV or stereo — what Microsoft has referred to as OnNow support.

Machines designated as workstations have additional requirements, such as a minimum of 4MB of video RAM and a separate L2 cache for each CPU in multi-processor systems. These machines should also support ECC memory and 64-bit physical memory addressing. Mini-notebooks are also mentioned as needing at least 16MB RAM, a Pentium 133 MMX CPU, and at least 512Kb of 480 video.

Perhaps more consequential is the move to eliminate the venerable ISA bus. This 16-bit expansion slot standard was first used in 1984's IBM AT, and has survived attempts to replace it with IBM's MicroChannel, EISA, and VLB Local Bus. These alternatives are mostly memories, but the ISA bus constraint on today's machines, along with PCI slots. The continued survival of legacy ISA components however, is the biggest reason that Plug and Play on today's machines so often remains Plug and Pray.

Still, Microsoft and Intel don't think that manufacturers are quite ready yet to bite the bullet and completely eliminate the ISA bus. As a result, inclusion of the ISA bus is an option for PC98, but it's widely expected that support for this classic but outdated piece of technology will be removed from the PC98 spec. It's hoped that by then, higher performance USB and Firewire peripherals will be common, and that ISA devices will no longer be needed or wanted in new systems.

As part of the move to USB and Firewire, expect to see external device bays, so that devices that are now typically added only by removing the PC's case and fiddling inside, will simply be plugged into an external bay. Compaq showed off such a system at November's Comdex, with two bays in the front of the PC's case, which allowed fast and easy installation of DVD, CD-ROM, hard drives and more.

Operating system-wide support for these proposed changes can be expected next year with the release of Windows 98 and NT 5.0. In the meantime, Windows 95 SR2.1 includes USB support, with device drivers being written by peripheral manufacturers.

So much after Intel introduced the Pentium-II, raising questions motherboards on the process, there's increasing evidence that the Pentium II's Slot 1 may not provide much of a performance increase over earlier systems. Customers are hearing that high-priced P-II systems seem to providing only a small performance gain over more affordable Pentium or clone Windows 95 systems. Similarly, informal tests found a marginal five per cent performance increase comparing up of the low 300MHz Pentium II systems to less expensive 266MHz systems.

The result, for Intel, has been lower than expected sales of Pentium IIs, followed by price cuts. (Now, 233MHz and 266MHz Pentium IIs currently offer a good price-performance ratio). Intel's response is to "just wait for Slot 2" — the next generation where, presumably a P-II will be done right. Slot 2, however, will be initially limited to workstations and servers. In addition, it's expected that in 1998, Intel will be phasing out current Socket 7 MMX Pentium CPUs in favor of a new Pentium II design lacking the current model's L2 cache RAM on the card. The result will be sold at a lower price, but offering lower performance. On the high end, expect to see 400MHz Pentium II models sometime around February.

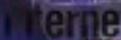
Alan Zisman is a computer journalist and teacher, living in Vancouver. He can be reached at azisman@rogers.com.

CANADA
Internet
World 98



Produced by:
Mecklermedia
THE INTERNET MEDIA COMPANY

Sponsored by:



internet.com
www.internet.com

WEB WEEK

Computing Canada

For more information
access the Website at:
www.canadianinternet.com or
call 1-800-900-1959.

The Stars are Coming Out in Toronto!

Internet World Canada '98 brings all the Internet stars together for Canada's largest and longest-running Internet, Intranet and Web conference and exhibition!

The Brightest New Stars!

Hot, new Internet applications and technologies from more than 150 cutting-edge companies. Today's top Internet manufacturers and suppliers!

The Latest Business Applications!

Discover effective new solutions for solving business challenges using the Internet. Over 80 workshops and expert power sessions for every level of Internet experience. Don't miss this opportunity to expand the knowledge of the Internet. Explore. Listen. Learn. Get your questions answered. See the very latest solutions and applications — first hand! There's even a special Symposium just for professionals.

Webstarism. There's something for everyone at Internet World Canada '98.

Reach for the Stars!

With thousands of business professionals from around the country, Internet World Canada '98 brings together all the Internet stars to Canada's largest 100% pure Internet event. Become part of the action at Internet World comes to Toronto! Call 1-800-900-1959, or access the Web site today at www.canadianinternet.com.

BRING YOUR TEAM!

Don't miss this chance to bring your team to Internet World Canada '98. Register in advance for FREE Admission to the Exhibit Hall, for your entire team or your colleagues. And you can't beat the group discounts available for the conference portion. Instant education for your Information Technology Team — only at Internet World Canada '98.

Internet World Canada is produced by Mecklermedia, publisher of the industry's leading magazines: Internet World, Web Week, Internet Shopper, and Internet.com — the number one online information centre.

Where the Internet Means Business!

Should You Buy Or Lease Your Business Vehicle?

By Douglas Gray



At this time of year, many business consider getting a new vehicle for their businesses. The most common question asked is "Is it more advantageous to lease or to buy a vehicle?"

Revenue. Consider how considered each option and has established rules to ensure that one option has little if any benefit over the other. The decision is therefore based on your situation and needs and cash flow considerations.

Whatever decision you make, make sure you thoroughly compare shop and sleep on it before you make any final decision. Sign documents and take the car away. You want to make a decision based on sound logic and not emotion or sales pitch by the car company. Compare the cost of each approach over the term you expect to own the vehicle.

The lease contract sets out the contractual nature of the deal. Any representations that the sales rep makes to you that are not contained in the lease contract, you can't rely on. So make sure that any statements made to you to induce you to lease the vehicle are written into the contract.

Advantages And Disadvantages Of Buying

Advantages:

- You own the vehicle and therefore do not have any restrictions on use.
- You are building up potential equity in the vehicle. For example, the value of the vehicle less the debt you have paid off.
- You can use the vehicle as security to borrow money.
- You can sell the vehicle and you keep the money, after any loans or paid off.
- If you are using the car as a business vehicle, there are additional benefits.
- Depreciation is deductible. For cars, it is 30 per cent a year on the declining balance. However, only a maximum of \$25,000 (plus taxes) is accepted as the capital cost of the vehicle, no matter how much more you pay.



- Interest on money that you borrow for the car purchase is deductible, however, there is a maximum of \$300 a month, no matter how much more than that you pay.

Disadvantages:

- If you are using the car as a business vehicle
- You cannot deduct the full cost immediately. Only the first \$25,000 plus taxes may be capitalized and depreciated for tax purposes, and the for you want or need might cost more than that.
- Only a maximum of \$300/month for interest is accepted by Revenue Canada. You pay your own repairs and maintenance expenses.
- There and effort is required to sell the vehicle.

The Advantages And Disadvantages Of Leasing

Advantages:

- You can change to a new vehicle relatively easily.
- There are more consistent and predictable cash flow requirements.
- If you are using the car as a business vehicle it frees up cash flow as monthly payments are generally less than loan payments when financing the purchase of a car.
- Lease payments are deductible, subject to limits set out by the Income Tax Act. At present, it is \$650/month.

Disadvantages:

- You don't own the vehicle.
- You are not building up equity in the vehicle. You are basically renting the vehicle for a certain time period.
- There could be restrictions on your use of the vehicle, for example, outside the province or country.
- Lease costs are slightly higher than purchase costs.
- Leasing expenses can be subject to increases. This could include financing, administration and other fees.
- You are responsible for maintaining the vehicle according to the maintenance schedule set out by the leasing company. This could cost you more money than if you had the freedom to do what you wanted, where

and when you wanted, as in a buy situation.

- There are many restrictions and limitations set out in the lease, that affect your use and enjoyment of the vehicle.
- You could be paying more money for greater mileage use, wear and tear and gainance of residual value at the end of the use, or penalties if you want to terminate the lease early.
- If you are using the car for business purposes, depreciation is not deductible on operating leases.

For further information, you can pick up a free consumer booklet on vehicle financing published by the Canadian Automobile Dealers Association and others. It is called "Thinking The Right Way Leasing." You can also purchase a Canadian buy versus lease software program that customizes the pros and cons of specific situations. One such pro-



gram is called "The Car Calculator," published by Dringosoft. (1-800-872-8893 or <http://www.dringosoft.com/calculator/>)

Also check with your provincial consumer services department for brochures and any legislative lease protections for consumers that might be available. Finally, speak to your professional accountant about the tax implications in your specific situation. **DF**

Douglas Gray LL.B. has had extensive experience as a lawyer specializing in small business. He is also a speaker and author of 13 best-selling business books, as well as investment software programs. His books include *Home Inc.*; *The Canadian Home-Based Business Guide*; *The Complete Canadian Small Business Guide* (both by McGraw-Hill Ryerson) and *Start and Run a Profitable Consulting Business and Marketing Your Product* (both by Self-Counsel Press).

Clearly Your Ultimate Choice



CALSBY COMPUTER PRODUCTS INC.

Head Office

70 East Beaver Creek Rd.
Unit 4142, Richmond Hill
ON L4B 5B2

Phone: 905-731-3861
Fax: 905-731-3862

Quebec Office

3561 Ashby
Ville St-Laurent
PQ H4R 2K3

Phone: 514-332-4334
Fax: 514-332-2182

Email: webmaster@calsby.ca
Website: <http://www.calsby.ca>

Vancouver Office

#5 - 20349, 88th Avenue
Langley
BC V1M 2K5

Phone: 604-513-9885
Fax: 604-513-9887
Toll Free: 1-888-888-3232

No simple cure for slowing sales

By George Bennett



At a recent meeting of the Western Canada Computer Distributor Society, I asked some attendees how their sales were compared to last year. The general consensus was gloomy — sales were down about 10 per cent on average, reported twice that one distributor.

Those inclined toward gloomy predictions are now wondering whether this is the long-façted shift of the computer market dynamic that has gathered momentum nearly unabated over the last four years. However, there are signs to the contrary, too. Market researcher Datapoint, in a Dec. 1997 report, predicts that sales of personal computers will grow 10 per cent in the coming months as a result of the downward price pressure that now finds sales of inexpensive personal computers opening the market to more new users than ever before. Indeed, as manufacturers push toward the US\$800 price-point for an entry-level system, the presumed price advantage of network computers is in considerable doubt.

Also, Statistics Canada recently found that Internet use doubled in Canada in the period from 1996 to 1997. At this point, says StatsCan, over 25 per cent of the population is on-line. Some industry leaders see this as an important factor that will determine the next period of economic growth.

In a compelling essay entitled "Focusing on the Great Prank," a metaphorical reference to *James and the Giant Peach*, a children's book by Roald Dahl, George Gilder states that "In every industrial transformation, businesses prosper by using the defining abundance of their era to alleviate the defining scarcity." Gilder defines the modern consumer's free time as the irremovable scarcity.

For all this above woe of the most precious resource, says Gilder, the remedy is the "Net Business" must use its defining abundance — MIPS, bits and graphics — to reduce the residual scarcity of time. In practical terms, this is the promise of the Internet — a new global economy based on bandwidth abundance. For more details and an index of communications-related articles by George Gilder, visit <http://www.ranapm.com/~ghg/~ghg.html>.

Naturally, there is no simple cure-all that will jumpstart slow sales. However, there are a number of important developments that are poised to define how the next generation of technology buyers will purchase and use their products. Most obviously, the transition now underway to the Pentium II and LX motherboard architectures (and its successors) will define the bulk of new system purchases in the near term. Because the software that drives the advantage isn't yet in place, only the early adopters are already on board, but the mass market is only about six months behind

Indeed, the notion of "looking six months in the future" is a useful exercise for those who must maintain a practical sense of marketability for their products and services. It's no good to be too far ahead of the curve, nor too far behind. **GB**

George Bennett is the Senior Editor of The Computer Paper and a former computer writer. He can be reached at gben@pcmag.ca. He will deliver a session at Comdex/Pecan this month entitled A Windows Roadmap for the Enterprise: 98/NT and Beyond.

Here are the trends that will be pivotal to defining sales over the next twelve months:

Q1

Early adopters will embrace LX motherboards, in preparation for Windows 98 and/or NT 5.0. Sales of Pentium II systems using the new motherboards and system components such as Ultra IDE drives, SDRAM and AGP graphics cards will improve as Q2 approaches.

As the 56K modem standard is refined, sales of these products will re-generate, but expect decline from cable modems and ISDN services.

Q2

Optimists that we are, we expect the release of Windows 98 around the middle of the year, despite the U.S. Department of Justice's Dec. '97 injunction disallowing Microsoft from forcing vagrants to bundle its Internet browser to part of their license of Windows 95 or its successor. Our interpretation of the wording of the injunction suggests that it is worded in such a way that Microsoft is almost certain to be able to win an appeal or at least work around the vaguely phrased requirements of compliance.

With or without Internet Explorer integration functions activated by default, Windows 98's feature set is likely to make it a big seller. We've been testing the Nov. 21 pre-release version (beta 3) of Windows 98 here at CCW, and it's shaping up very nicely, with compelling features that range from automatic Windows updates via the Internet to its strong TV integration and integral support for scanners from Hewlett-Packard, Unisys and other manufacturers. Some features, such as ACPI and USB, are certain to encourage new system purchases as NT 5.0 begins to emerge in near-final form. ACPI power management functions, for example, require systems based on LX motherboards or their successors and, as many vendors are keenly aware, such motherboards require all-new chips and present a strong disincentive for the user to invest in all-new Synchronous Dynamic RAM, as well. Other features like DVD, Firewire and TV support, are likely to result in strong sales of the supporting audio/video hardware such as video cards offering hardware support of 3D acceleration via Direct3D and sound cards capable of delivering hardware support for DirectSound APIs.

Q3 and Q4

The market for DVD — especially the recordable and rewritable varieties that hold so much promise in the computer industry — must settle down from the chaotic state it is currently in. If PC-based DVD sales are to take off, for the record, I'm betting on the Sony-Philips-endorsed DVD+RW standard.

To help you make sense of current market conditions, I have a page of info on such volatile technologies such as DVD and PCs posted at <http://www.ccw.ca/~gb/>.

The lesson is all of this is to be aware of the technologies that will drive the decisions that your customers will be facing during the coming months.

Total Component Solutions



BENWIN

NEW

Authorized Sale Distributor Advance Model Computer



TM980



TM980 3D



BENWIN

Authorized Sale Distributor Advance Model Computer



BWV180



BWV177



BWV176

Buy 11 (anyone), get 1 FREE

EASTERN

Super Master and
Satellite Speakers

\$109

\$89



ASX107



ASX108

CYBEREX Keyboard
(Buy 8 get 1 FREE)



\$25

CYBEREX
400 dpi Mouse



\$38

Ergonomic Keyboard



\$25

LOGITECH

Trackman Marble



\$65



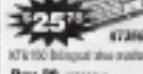
Special



**Serial / Compo
MouseMan**

\$38

Key Tronic



\$25

ATI 16MB Intelligent Video Accelerator

Buy 20 (K73600)

get 1 FREE



\$24

LiteOn



\$67

LiteOn



\$40

adaptec®

AHA 2940 Ultra **\$229**

32 bit SCSI Controller 20MBps

AHA 2940 Ultra Wide **\$259**

28 bit fast wide Ultra SCSI 40MBps

985TX **\$82**

10Base-T 10/100 Mbps

CIRCUIT LOGIC®

ISA 5429 **\$44**

PCI 5440/5440 **\$20**

PCI 5445 **\$25**

PCI 5464 (PCI) **\$49**

S3 Virgo (PCI) **\$42**

S3 Virgo (ISA) **\$62**

S3 Virgo 8X (PCI) **\$44**

metrox

MCA 386/486/586 **\$119**

ATI **\$119**

3D Corporation 3D **\$119**

ATI 3D **\$72**

ASUS

Opti 256K **\$59**

Opti 512K **\$59**

Opti 512K Platinum II **\$59**

Matsonic

Pentium Motherboard

Intel TX 512K **\$100**

TXP4 512K **\$88**

OPTI 256K **\$59**

CD Rewritable

Maxtor 20W-4022 2x 8x IDE **\$89**

CD Recorder

Sony 2x 8x IDE **\$48**

Maxtor 2x 8x IDE

Maxtor 2x 8x IDE **\$89**

CD ROM

Foxstar 16x w/ Laser Beam 97 **\$99**

Panasonic 24x

Toshiba 24x **\$95**

Toshiba 32x **NEW \$139**

CompuFAX (Rockwell)

33.6 FaxModem / Voice with Speakerphone

Robotics

56K FaxModem

Acer

56K FaxModem

CREATIVE

AME64 Voice OEM **\$109**

SB16 4181 **\$48**

SB 3D ProP. PCI 32 Bit **NEW \$45**

YAMAHA 3D ProP **\$18***

OPTI 512 3D ProP **\$16***

Eastern Canada

COMPU-FACTORY ENTERPRISES INC.

#140 - 2721 Jouxville Road, Richmond, B.C. V6V 2L9

Tel: (604) 207-0916 Fax: (604) 207-0942

Eastern Canada

ADVANCE MEDAL COMPUTER

75 Kordal Crescent, Unit C, Markham, Ontario L3R 1T8

Tel: (905) 946-9860 Fax: (905) 946-9863

Toll Free: 1-800-206-2724

Prices are quoted for quantity of 25 and subject to change without notice. All logos and trademarks are the property of their respective owners.

Book Helps Prepare For Microsoft Certification

By Stephen Baroni

Title: MCSE Training Guide: Windows 95

Author: Michael Wolfe, Rob Tidrow, Joe Casad

Publisher: New Riders

ISBN: 1-56205-745-4

Format: 766 pages with enclosed CD-ROM

Level: Intermediate to advanced

Cost: \$84.95

Description: One of a series of titles from New Riders providing Microsoft-approved, comprehensive training for Microsoft Certified Systems Engineer (MCSE) exams.

Rating: A — Recommended for network consultants and novices.

There is a severe shortage of Microsoft Certified Professionals (MCPs), so certification is a hot ticket today. In the second annual MCP Monitor survey, it was reported that the average MCSE earns US\$370,700. That is a powerful incentive for you and your customers to become industry-certified.

So, the question arises, which is the best route to take? Currently, there are three major choices: use an approved self-study guide, work through computer-based coursework, or take a Microsoft-certified course. Each has their advantages, but one gains: It's self-study due to the low cost. This trend clearly shows in the recent MCP survey — 91 per cent are using books as a preparation method with 96 per cent indicating some sort of self-study as a preparation method.

Which books would you choose for yourself or your customers? What should you look for? The answers are surprisingly simple. Choose a Microsoft-approved guide, written by experienced experts who have proven writing ability. Within the guide itself, look for plenty of practice questions, and additional background material outside of the topic area plus exam simulations. In addition, look for time-saving tips, and real-world examples.

New Riders' MCSE Training Guide Windows 95, is an excellent "network consultant" handbook/vademecum and manual. However, it doesn't stop there. It is also a superb study guide for Microsoft's "Implementing and Supporting Windows 95" MCSE exam. Microsoft exam-specific objectives that your customers can find on Microsoft's website. Here lies a challenge: The exam also includes material outside the objectives to test the general knowledge of the candidate. This book meets the challenge by including a considerable amount of additional material that will prove useful in the real world.

The authors bring plenty of experience to the book. Rob Tidrow has written more than 20 books including seven on Windows 95. Joe Casad is former managing editor of *Network Administrator Magazine*. Michael Wolfe works for Chevron and holds both a Novell Master CNE and Microsoft MCSE. Their experience is evident in the clear writing and thorough coverage. The book contains extensive tips and explanatory notes that are very useful to novice and expert network consultants.

What sets this book apart from others? There is a handy five-page pullout listing all the exam objectives and their location in the book.

Each chapter begins with test questions to help your customer determine the amount of study time they should spend. For example, Chapter One: Planning and Installation, contains 39 questions and 50 review questions.

The CD is particularly useful with TestPrep — New Riders' test engine that simulates the actual test, an electronic flash card system to help in the study process, an electronic version of the book and samples of major commercial test-prep engines. To protect your customers against rapid changes, the Web addresses point to the latest exam objectives and certification requirements.

After finishing the book, your customers will understand how to configure and install Windows 95 client services in a NetWare environment, know the intricacies of network client services, how to migrate from other operating systems, and perform Registry troubleshooting. They will feel comfortable with the Desktop, Taskbar, Start menu, configuring property sheets, designing and implementing profiles. In addition, they will know how to manage disk resources using system tools, configure and install drivers, analyze GFPs, and use the Device Manager to configure Plug and Play components.

The book delves into the subject matter with twelve chapters and four appendices. The topics include:

- Planning and Installation,
- Architecture and Memory,
- Customizing and Configuring Windows 95,
- Editing User and System Profiles,
- Networking and Interoperability,
- Managing Disk Resources and Utilities,
- Managing Printers,
- Running Applications,
- Mobile Services,
- Microsoft Exchange,
- Plug and Play,
- Troubleshooting,
- Appendix A: Overview of the Certification Process,
- Appendix B: Study Tips,
- Appendix C: What's on the CD-ROM, and
- Appendix D: All About TestPrep.

In summary, the book is an all-in-one, Microsoft-approved study tool that would be useful to your customers for exam preparation and as a real-world operating system reference. There are numerous real-world examples, and tips for working with Windows 95. I highly recommend this one-of-a-kind resource for all VARs, network administrators, installers, consultants, or students of networking. For those interested in Windows NT, I recommend New Riders' MCSE Training Guide: Windows NT Server 4, ISBN 1-56205-768-5. **SP**



new products

Sharp adds keyboardless E-mail device

Sharp has introduced a pen-based handheld E-mail/organizer device with a suggested list of US\$399. The new Sharp SE-500 is optimized to keep mobile professionals up to date with current E-mail and contact manager or Personal Information Management (PIM) data. E-mail and some PIM synchronization software is included with the base unit. Option selection and test entry is done with a stylus or user's finger touch, and an on-screen keyboard.

The SE-500 has an integral 14.4 Kbps modem, an IrDA port for printing and file transfer, and a 240 by 128 back-lit screen. The SE-500 also comes with its own docking station. See <http://www.sharp.com>

Seagate ships Crystal Info 6

(NB) — Seagate Software, a unit of Seagate Technology Inc., has announced that its Crystal Info 6 business intelligence software is now shipping.

Crystal Info 6, formerly known by the code name BlackWise, incorporates hybrid on-line analytical processing (OLAP) and Channel Bus technology. Matt Droe, Seagate Software's product strategist, said at a teleconference with reporters that Crystal Info is the first business intelligence product to provide both relational OLAP and multidimensional OLAP capabilities — a combination that research firm Gartner Group Inc. has dubbed Hybrid OLAP (HOLAP).

Qspeedware Corp. of Toronto has launched MediaMR, another HOLAP product.

A key new capability in Crystal Info 6 is its support of push technology, including standards being pushed by both Microsoft Corp. and Novellus Communications Corp. to make business intelligence information available via the Web or an intranet.

Seagate Crystal Info 6 starts at US\$3299 per client license. Reporting and query capability comes in an add-in module that costs another US\$199 per user. Another module contains the OLAP capability, for US\$349 per user. See <http://www.seastate.com>

Microsoft delivers Internet financial technology kit

(NB) — Microsoft Corp. has announced Microsoft Internet Finance Server Toolkit (MIFST) for banks and financial institutions. The new toolkit provides companies with the necessary technologies operating behind Web servers customers normally see and navigate.

While visiting a Web site of a bank, brokerage house or other financial institution, customers see a graphical interface and can consent; they do not see MIFST. The US\$999 product is a platform upon which a bank builds a navigable Web site. "MIFST is a platform and toolkit which allows a company

to put together a simple package for processing bill paying, checking account transactions, transfers of funds and other banking and brokerage data," said a Microsoft spokesperson.

Different elements of MIFST address data integrity and scalability concerns associated with building an on-line financial services site. The product requires Windows NT Server 4.0 and Microsoft SQL Server 6.5 and interoperates with all elements of the Microsoft BackOffice platform.

Security is backed by support for 128-bit encryption.

See <http://www.microsoft.com>.

CanTax adds CD-ROM tax tutor based multimedia

Calgary's CanTax and the Jacks Institute, of Winnipeg, have launched an interactive, multimedia version of The Canadian Tax Tutor on CD-ROM, which features the IRS' former Evelyn Jacks.

It combines tax training and tax planning, and Gerry Kalansuk, chief operating officer of CanTax, says the company is looking to expand both the selling season and the tax planning



sessions, with this product. "By taking a number of simple tax planning steps during the year, you can see a significant effect on your tax return."

Suggested retail price for The Canadian Tax Tutor is \$49.95, and that price includes the final filing version of CanTax 98.

Among its customer base, CanTax numbers about 7,500 tax preparation services and more than 40,000 individual taxpayers. See <http://www.cantax.com>

NEC debuts full-keyboard MobilPro 700 handheld CE system

In announcing a new, second-generation Windows CE device with greatly enhanced functionality over its first offerings on the CE platform, NEC is answering user demands for improved handheld PCs using the Microsoft CE operating system. The MobilPro 700 offers the fine-tune "touch-typing" keyboard in a handheld CE device, according to NEC Computer Systems Division. With a weight of under 1.5 pounds, the MobilPro CE is much more productive for data entry, featuring a 7.3-inch back-lit touch-screen, a 30 kilobits internal modem, an IrDA port for easy file transfer, color VGA output for business presentations, voice recording capability and a compact flash memory and Type II PC Card (PCMCIA) slot for easy upgrading. The MobilPro offers up to 25 hours of battery life on two AA alkaline batteries, and is optimized for Windows CE 2.0.

According to Gordon Neff, manager of system products for NEC CSD Canada, "Our customer research has demonstrated that

mobile professionals most often require Internet and E-mail access, word processing and PowerPoint functionality while away from their desks. The added functionality and features of the MobilPro 700 bring out the best in Windows CE 2.0. This combination delivers that mobility, unlike anything else in the market."

Software includes MicroBurst, Virtual Counter for mobile-to-Mail or MS mail users, Symantec PCAnywhere, for remote access and synchronization, Power Directorate, for Personal Information Manager (PIM) synchronization, bSqueak MAX Professional, for mobile faxing, CHC QuickNotes, for electronic handwriting analysis, and CompuServe SpyNet, for accessing CompuServe via the MobilPro.

NEC says it is working on delivering a color screen version.

The MobilPro 700 is available now, for a street price of about \$999. See <http://www.nec.com>

Brother adds MFC-7000FC

Brother International has just released the MFC-7000FC multifunction device, a product that handles color scanning, printing, and copying, fusing, color fixing, message centre, and video capture and print. The MFC-7000FC is aimed at the SOHO market, where an all-in-one peripheral is needed for consumer, education or business imaging, communications and printing.

The MFC-7000FC scans at up to 1,200 by 1,200 dpi (with interpolation), in either 24-bit (16.7 million color palette) true color or eight-bit (256 shade) grayscale. It can make copies at resolutions of up to 50 per cent, or enlargements up to 200 per cent, and print in color or black and white at up to 720 by 720 dpi resolution. The plain paper fax feature operates at up to 164 kbps, and has advanced features such as hands-free switch, Caller ID, distinctive ring detection, and simultaneous fax/copy/printing capability.

The integrated Message Centre can store up to 50 messages of digital messages in its mailbox, with full duplex speaker-phone option, fax forwarding and paging, remote fax retrieval. Contact <http://www.brother.com> or 651-665-0000.

**Attention VARs, Resellers and Dealers,
Your new source for PC Software.**

INTER-PLUS INC.**SOFTWARE DISTRIBUTORS**

Business Productivity, Educational and Games.

1-800-510-9011

Monday to Friday 9AM to 5PM Eastern Time

Shipped anywhere in Canada within 48 hours!
Call and ask for your copy of our price list catalogue.

Digital Persona has U.are.U fingerprint recognition

One of the latest entries into the field of computer "biometrics" (computer technology that gets information from measurement of human biological function or characteristics) is the U.are.U Fingerprint identification system from Redwood City, Calif.-based Digital Persona.

The U.are.U product is a hardware device that attaches to a PC to allow users to gain access to computer systems and data through the use of their personal fingerprints. U.are.U consists of a small fingerprint scanner that attaches to a PC via a Universal Serial Bus (USB) port, and software which allows a user to input his or her fingerprint as a "password" to a standard PC. In addition to the finger scanning feature, the U.are.U software also offers a security screen saver, which blanks the screen after a period of inactivity, and only allows re-access if the user re-scans his or her finger. This is aimed at dealing with the

problem of unauthorized access to a temporarily unattended PC.

The U.are.U system comes to market at a time when fingerprint scanners seem to be rapidly proliferating. The world leader in this category, the BioMouse from Ontario-based America Biometrics, established the low-cost fingerprint scanning product category, and a competing product from Sony has been announced. Other biometric security systems, based on voice print, face recognition, and eyeball arterial scanning, have not found a ready market, due to problems of cost and reliability. Digital Persona claims that the U.are.U system stands apart from the competition through its low cost (US\$99), ease of installation, intelligent recognition of poor quality or rotated fingerprints, and unique screen saver feature.

Contact <http://www.digitalpersona.com> or 650-281-6000.

Protec WebShare Models offer speedier access

Point-Click-Go: Que based Protec Microsystems Inc. has released two new upgrades to its popular WebShare product, a hardware device that allows up to three PCs to share a single IP address and Internet account.

According to Blanca Novoa, marketing manager for Protec, "Small organizations have embraced the WebShare concept because it beats the high cost of multiple Internet access, and now with this new release supporting higher speed modems, users can be even more productive."

The second new version of the product, which relies on a user supplied external modem, is especially suited to expanding capabilities through higher speed modems. Prices for WebShare begin at US\$250.

Protec has also unveiled a new small office networking solution named SOHOlink, which is claimed to be "the all-in-one Network Hardware Suite for small offices and home offices." SOHOlink is based on a compact Ethernet IEEE802.3 hub that can connect up to six PCs in a local network, sharing printer, fax/modem and Internet resources. The network can be expanded beyond five users by attaching the sixth port on the main hub to a second SOHOlink hub. Contact <http://www.protec.ca> or 1-800-363-8156.

Tally introduces fast Impact T6180 printer

Tally Printer Corp. is shipping the T6180, a printer which Tally claims is the fastest line impact printer in the world. While the mainframe computer world has moved away from the once-popular impact printer format in favor of laser and inkjet, there remains a sizable and lucrative market for impact printing in high-end, specialized applications.

The Tally T6180 is capable of printing 1,800 lines per minute. It incorporates some significant new technology to achieve its higher performance, including a proprietary print controller which intelligently arranges page into segments prior to printing, the ability to print text and graphics in one pass, paper path reducing static control, and real-time monitoring of hardware temperature and performance. The T6180 has a suggested retail price of \$12,999. Contact <http://www.tally.com> or (423) 251-5534. ■



CALENDAR

PEOPLE

See Miller

Compaq Canada president resigns

After just a half year on the job, Sue Miller has resigned as president and managing director of Compaq Canada Inc.

In December, the company and Miller had resigned "to pursue other interests, effective immediately."

Dan Weatherup, vice-president, government and education sales, North America Division, Compaq Computer Corp., has been appointed acting president of Compaq Canada Inc. by Jim Schmitz, vice-president and general manager, North America Division, Compaq Computer Corp., until a permanent successor is named.

Digital Sound names VP marketing

(NFO) — Digital Sound Corp. has appointed Pamela J. Thompson as vice-president of marketing. Thompson will be responsible for developing a worldwide market strategy and will manage product marketing, channel marketing, and communications programs.

Thompson was eight years at Motorola Inc. where she was most recently the director of strategic businesses, responsible for developing and implementing wireless content "solutions" for paging carriers around the globe.

Thompson was previously managing director for Motorola AirCommunications Ltd. She also held other senior management positions at Motorola, including vice-president and director of Asia Pacific wireless data network operations and manager of corporate strategy.

Corel's VP joins Pictorius

Halifax-based Web development tools vendor Pictorius Inc. has announced Mark Alberdingk Thijm — former vice-president of sales for Corel Corp., has joined the company as vice-president, sales and marketing.

During more than five years with Corel, he played a key role in building and directing Corel's sales force in North America, Europe, Asia and the Pacific Rim, says Pictorius.

"Pictorius has definitely positioned itself as a leader in the web development market — a market that is taking off worldwide as businesses discover the power of the Internet as a vehicle to publish information and deploy applications," said Alberdingk Thijm, in a statement. He joins a management team led by president and CEO Jerry Bourassa.

Stentor council gets chairman

The Stentor Alliance Council of CEOs has announced the appointment of Colin Lithian as chairman. He succeeds Brian Canfield, who stepped down as CEO of BC Telco.

Lithian is president and CEO of Maritime Tel & Tel and chairman of the board for The Inland Telephone Company Ltd. and MT&T Mobility Inc. He is an engineer by training, and has gained extensive experience in business services, sales and marketing during his 29-year career.

The Council of CEOs provides overall strategy direction for the Stentor Alliance in matters of national service development, policy, regulatory affairs, and technology. The members of the alliance are BC Tel, Bell Canada, MTS Tel, Maritime Telecom Services, Maritime Tel & Tel, NBTel, NewTel Communications, NorthWestTel, QuebecTel, SealTel and Telus.

Lithian is a member of the Association of Professional Engineers of Nova Scotia and a fellow of the Canadian Academy of Engineering. He also serves on the Board of Directors for the Nova Scotia College of Art and Design, the Greater Halifax Partnership and FixLine Technologies Inc. (CNW)

JAN. 6-8 MacWorld Expo San Francisco '98

San Francisco

<http://www.macworldexpo.com/www98/index.html>**JAN. 26-27****CanadaFest '98**

Vancouver

<http://www.comdex.ca>**FEB. 1****Computer Show Market**

Toronto

Admission \$3 vendor tables \$200

Call: (905) 677-5625

FEB. 3-6**Internet World Canada '98**

Toronto

Call: 1-800-628-5037

<http://www.comdex.internet.ca>**FEB. 10-12****Internet Expo**

San Jose Calif.

http://www.sj.com/intro/internet_expo**FEB. 18-19****Computerworld (Western) & Mac Expo '98**

Vancouver

Call: (416) 955-4538

Fax: (416) 955-1791

[E-mail: dept@compwld.com](mailto:dept@compwld.com)**FEB. 18-20, 1998****The Second Annual Mobile & PBX Expo**

San Francisco

Call: (415) 259-8836

<http://www.pbx-expo.com>**MARCH 8-11****The Enterprise Resources Planning Summit**

Chicago

<http://www.sil.com/crp/>**MARCH 23-27****Canada/Enterprise '98**

San Francisco

<http://www.comdex.ca>**MAY 18-20****CTS EXPO**

Toronto

<http://www.iesmedia.ca>**Do you have news?**

If there are personnel or other
newsworthy changes at your company,

drop us a line at ccw@tcp.ca.



Do you have something
pertinent to see
listed in CCW's Canadian
e-mail newsletter?

Nifty Numbers

Digital PCS Will Have One Million Canadian Subscribers in '98, Says New Study

Richdale, On based market research firm Evans Research Corp. says the PCS market will attract more than one million subscribers before the end of 1998 in a recent report called *The Emerging Markets: Personal Communications Services*.

ERL predicts the PCS market will soar as a direct result of the associated benefits of digital cellular technology. Including improved sound quality, enhanced security, and an increasingly low price. The phones also support call forwarding, call waiting, caller ID, conference calling, text messaging, higher throughput speeds with reliable connection and longer battery life.

The research firm stresses increased security as one of the most important features of PCS. While traditional cellular phone calls are fairly easy to listen in on, with PCS digital networks transmit data in encrypted code, which changes throughout the call, which

reportedly makes it extremely difficult to breach security, says Evans.

Evans says Bell Mobility (the largest shareholder of the Mobility Canada consortium) and Rogers Cable lead the Canadian PCS market.

By the end of 1997, Rogers Cable Inc. was expected to service more than 80 per cent of the Canadian population. ERL estimated that Bell Mobility's potential coverage encompassed more than half the population of Ontario and Quebec.

Evans noted that applications currently under development include push-pull content delivery to save on-line transaction and allow information to be delivered to the user.

scriber's phone. And more computing functions are being integrated, to support E-mail, fax and Web browsing.

Contact Evans Research Corp., at (416) 622-8814, ext. 236.

% of Self-Employed PC Users with Other Products/Services

Products/Services	% Using
Cellular phones	56%
Multiple phone lines	44%
Internet access	43%
Fax machines	42%
Pagers	33%
Data/fax lines	28%
Copiers	23%

Reader Poll

Last Issue, we asked:

What impact is Electronic Commerce having on your revenues?

You said:

50% I attribute revenue increases directly to Electronic Commerce

38% I don't see any measurable effect on my business revenues, due to Electronic Commerce

17% Electronic Commerce, with the additional competition it brings, is having a negative effect on my business

This issue:

Over the last year, cable companies like Rogers Cablesystems, and licensors of its Wide Internet service have been rolling out high-speed 'Net access via cable systems. By the end of 1997, 110,000 North American customers were expected to be using cable modems to access the Internet, and one recent study

Our question to you:

How popular will cable modems be in 1998 with your competing customers?

Please indicate which most closely reflects your view:

- Customers are rapidly investigating cable modems, attracted by the high potential speeds of the technology. Interest will be high in 1998.
- People are interested in cable technology for Internet access, but are merely taking a wait-and-see approach. Interest will be moderate in 1998.
- Customers are comfortable with the traditional telephone-based Internet services, and are hesitant to invest in the cable modem alternative. Interest will stay relatively low in 1998.



Log onto our Web site

<http://www.ccwmag.com>,

E-mail: cw@ccw.ca

or send your responses and comments, by fax, to:

(604) 608-2686



Allied Telesyn
International

Brand Name Network Products Affordable Pricing

ProData is proud to be a working partner with
Allied Telesyn International.

Allied Telesyn International Corp. is a worldwide provider of highly reliable, standards-based LAN connectivity components. Allied Telesyn is committed to providing the lowest cost of network ownership through competitive pricing, high reliability, and comprehensive product support and service. The company's product offerings include Ethernet adapter cards; network management software; intelligent Ethernet hubs, including stackable hubs and switches; Asynchronous Transfer Mode (ATM) solutions; and media products such as transceivers, fanouts, repeaters, and unmanaged hubs.

For More Information on Allied Telesyn Products Contact
ProData or Visit Allied Telesyn on the World Wide Web
@ www.alliedtelesyn.com

ProData

Celebrating Ten Years of High Performance

Visit Pro Data on-line: World Wide Web: www.pro-data.com

CONTACT: S.C.



Vancouver

P.O. Box 1004 314-1586
Fax: (604) 825-3087

Calgary

P.O. Box 250 410-4101
Fax: (403) 255-7706

Alberta

P.O. Box 413-4210
Fax: (403) 413-5210

Man./Sask./N.W. Div.

P.O. Box 201-0980
Fax: (304) 231-0480



Out of Town Dealers call 1-800-567-3274

Sceptre's Soundx Notebooks Are:



Rated #1 in PC Digest

"The Sceptre Soundx 5500 Notebook is the fastest system in the review..."



"Sceptre takes top honors with the Sceptre Soundx 5500, which leaves all the other notebooks in its tracks when running NSTL's panoply of performance benchmarks. This is a very fast desktop replacement with a 233-MHz Pentium® processor, a 13.3-inch XGA display, and a roomy 3GB hard disk drive for storing large multimedia files."

NSTL PC Digest, September 1997

Best Buy - PC Portables

"The Sceptre Soundx 4500 is an impressive machine..."



"Sceptre is selling this computer [166 MHz Pentium® processor with MMX™ Technology, 12.1-inch TFT SVGA display, 1.1 GB HDD] with 40 MB of RAM... for just under \$3,000, which puts it well within the reach of many. This configuration... deserves our "Best Buy" rating for the value represented."

PC Portables, November 1997

In head-to-head comparisons against the likes of Compaq, Hewlett-Packard, Gateway 2000, Matsui and Hitachi, to name a few, Sceptre's Soundx notebooks have proven themselves the best. Call now for a distributor near you or check out our web-site for more information.



SCEPTRE
THE FIRST, THE BEST, THE ONLY
Visit Us At COMDEX Fall '98, Booth #1302

www.sceptre.com

The Intel Inside Logo and Pentium are registered trademarks and MMX is a trademark of Intel Corporation.

1-888-350-8989